



# OPERATING INSTRUCTIONS AND PARTS LIST

SERIES 11

# DUMORE TOOL POST GRINDER

## MODEL NUMBER 8119

The model number of your Series 11 Dumore Precision Lathe Grinder is identified by the first four digits of the serial number shown on the tool nameplate.

### INSTRUCTIONS FOR ORDERING PARTS

All parts listed herein may be ordered from your dealer, from any authorized Dumore Service Station, or direct from the factory. When ordering repair parts, always give the following information:

- 1) The Part Number in this list
- 2) The Part Name in this list
- 3) The Catalog and Serial Number of the grinder

Filing this list for future reference will assure you of obtaining the proper parts for service.

All prices F.O.B. Racine, Wisconsin; subject to change without notice. Minimum charge on all orders \$1.00. All orders subject to acceptance by the company at Racine, Wisconsin.

## OPERATING INSTRUCTIONS

**POWER SUPPLY** -- The Dumore Grinder is equipped with a high speed, universal motor which can operate on A.C. or D.C. (0 to 60 cycle) current. Be sure that the voltage of the power supply agrees with the voltage shown on the motor nameplate.

**GROUNDING**--This tool has passed a 1,250 volt ground test but for your protection ALL PORTABLE TOOLS SHOULD BE GROUNDED. This grinder is equipped with a three-conductor cord. The green colored conductor is the ground wire. One end of this ground wire is connected to the motor housing to prevent accidental shock. The other end of the wire is provided with a threaded stem at the side of the plug. Use this screw to replace one of the regular cover screws on an outlet box provided that the outlet box is properly grounded by means of a metal conduit (BX is acceptable) or grounding wire. This provides a quick connection for the ground wire. If the box is not grounded, attach the ground wire to any permanent ground such as (1) a water pipe, (2) a properly grounded conduit, or (3) the ground wire of a grounded supply system.

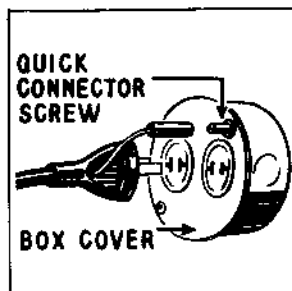


Fig. 1

**CAUTION:** Always connect the ground wire BEFORE you put the plug in the receptacle.

The Series 11 Grinder is designed for use on lathes with an 8" to 11" swing. All tool-post grinding is done with the grinding spindle center adjusted to the exact height of the work center. Therefore, the distance from the top of the compound to the center line of the lathe, "X" (Fig. 2) must always be equal to or greater

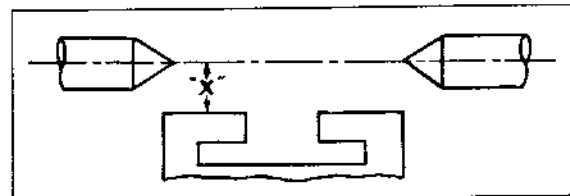


Fig. 2

than the distance from the base of a grinder frame to center line of spindle (commonly referred to as the minimum mounting distance.) If this condition does not exist, grinder will not fit lathe because the grinding spindle cannot be set at work center. If the grinder is being used on one lathe specifically, a good time-saving idea is to make a metal spacer plate to fit between the mounting post base and the base of the grinder frame so the tool automatically lines up with the work center.

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## DUMORE PRECISION TOOLS

THE DUMORE COMPANY

RACINE, WISCONSIN, U. S. A.



**SETTING UP ON A LATHE** -- Before setting the grinder up on a lathe, mount the workpiece either in a chuck, collet or between centers. The Dumore SERIES 11 is designed to fit in the T-slot of a lathe compound. To set up, remove the mounting post from the grinder by loosening the lock nut on the right side of the frame and pulling the post free. Insert the T-bolt of the mounting post into the T-slot of the lathe compound and tighten nut at the top as illustrated in Fig. 3.



After the mounting post is tightened, set the lathe compound at any angle listed on the chart, Fig. 7. The starred 60° angle setting seems to be ideal as the feed is set at .001" and the actual cut into the work is .0005 while the reduction in the diameter of the workpiece is .0010". The graduations on a lathe compound dial are in thousands and your work will often call for accuracies of tenths of thousands. This chart will be helpful in determining how much stock is being removed, the actual cut, and approximately what reduction is being made in the diameter of the work.

Next slip the grinder onto the mounting post and position the tool so that the spindle is parallel to the workpiece. Set the center line of the spindle at the approximate center line of the workpiece and tighten the lock nut Fig. 4.

Select the proper pulleys for the wheel size to be used and install pulleys on motor and quill as shown in Fig. 5. Check the motor nameplate for proper pulley recommendations for each wheel size. **WARNING: DO NOT EXCEED WHEEL SPEED RECOMMENDATIONS.**



With a collar on each side place the large straight wheel on the spindle and tighten nut to hold wheel and collars in place. This is for external grinding.

Internal grinding utilizes the collet chuck which screws onto the threaded wheel end of the spindle after the wheel and collars have been removed. Mounted wheels with 1/8" shanks can be used by inserting shank in chuck and tightening sleeve securely. Wheel size should be from 2/3 to 3/4 the size of hole being ground, Fig. 10.



The Series 11 Grinder has automatic belt adjustment by means of a tension spring. Since the motor pivots on a tension shaft, the belt can be assembled by pushing the motor forward and slipping the belt over the pulleys. By releasing the motor, the belt automatically becomes taut. Fig. 6.

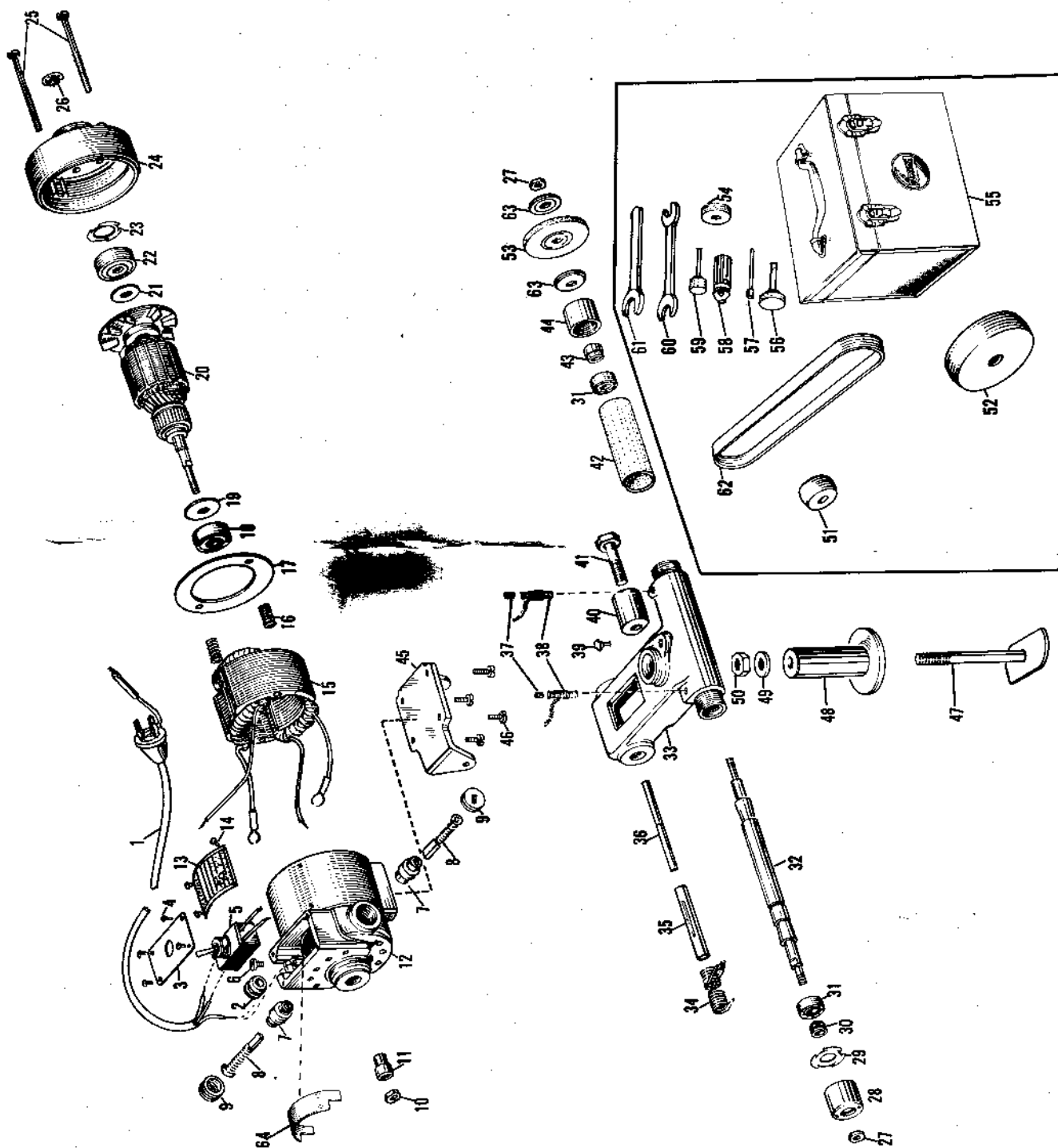
Next, dress the wheel to make the grinding face parallel with the workpiece. This is done by clamping the diamond dresser to the workpiece as illustrated in Fig. 8. This is for external grinding. Dressing for internal grinding and facing is described later. Turn the grinder switch on and make a very light pass over the diamond nib using the hand wheel to traverse. Make several passes back and forth over the nib without re-setting depth dial. Since wheels are costly

and have to be replaced as they wear down, always take a very light pass over the diamond nib when dressing to conserve wheel life.

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ANGLE SETTING OF LATHE COMPOUND	FEED ON COMPOUND IN INCHES	ACTUAL CUT TAKEN INTO THE WORK	REDUCTION IN WORK DIAMETER
30°	.001	.00086	.00172
45°	.001	.00070	.00140
*60°	*.001	*.00050	*.00100
70°	.001	.00034	.00068
75°	.001	.00026	.00052
80°	.001	.00017	.00034
84°	.001	.00014	.00028

Fig. 7



PARTS LIST

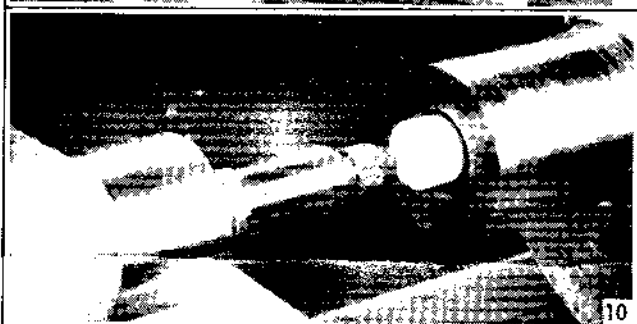
Item	Part Number	Part Name	Req.	Price Each
1	R-517-0052	Cord Assembly. . . . .	1	\$ 1.45
2	R-469-0005	Rubber Bushing . . . . .	1	.05
3	520-0042	Switch Housing Cover . . . . .	1	.25
4	R-819-0409	Cover Screw. . . . . 6-32 x 1/4 Rd. Head	4	.05
5	R-751-0059	Toggle Switch. . . . .	1	.90
6	R-821-0309	Ground Screw . . . . . 6-32 x 3/16 Bdg. Head	1	.05
7	451-0046	Brush Holder . . . . .	2	.35
8	R-457-0529	Carbon Brush . . . . .	2	.35
9	R-456-0045	Brush Plug . . . . .	2	.10
10	645-0040	Nut. . . . . 1/4-32 Thread	1	.20
11	729-0041	Spacer . . . . .	1	.75
12	589-0285	Brush End Housing. . . . .	1	4.25
13		Name Plate (Not Replaceable) . . . . .	1	
14	R-808-0001	Name Plate Screws. . . . .	4	.05
15	548-0213-270	Field Assembly . . . . . 115 Volts	1	5.50
	548-0213-278	Field Assembly . . . . . 230 Volts	1	6.50
16	R-735-0001	Coil Spring. . . . .	2	.05
17	414-0008	Baffle . . . . .	1	.15
18	R-426-0118	Ball Bearing . . . . .	1	1.45
19	757-0002	Dust Thrower . . . . .	1	.95
20	408-0002-210	Armature Assembly. . . . . 115 Volts	1	12.75
	408-0002-218	Armature Assembly. . . . . 230 Volts	1	13.75
21	771-0007	Strip Washer . . . . .	1	.05
22	R-426-0119	Ball Bearing . . . . .	1	1.45
23	R-734-0021	Flat Spring. . . . .	1	.25
24	599-0202	Plain End Housing. . . . .	1	2.35
25	R-810-4313	Housing Screw. . . . . 10-24 x 3-1/2 Fil. Hd.	2	.05
26	R-456-0046	Plug . . . . .	1	.05
64	R-606-0066	Switch Insulator . . . . .	1	.05
	430-0081-210	Complete Motor Assembly. . . . . 115 Volts	1	37.50
	430-0081-218	Complete Motor Assembly. . . . . 230 Volts	1	39.50

GRINDER FRAME ASSEMBLY WITH SPINDLE

27	645-0040	Nut. . . . .	2	.20
28	476-0021	Bearing Cap. . . . .	1	2.65
29	R-734-0034	Flat Spring. . . . .	1	.20
30	729-0042	Spacer . . . . .	1	.55
31	R-426-0101	Ball Bearing . . . . .	2	1.95
32	732-0129	Spindle. . . . .	1	5.45
33	558-0020	Grinder Frame. . . . .	1	14.25
34	R-735-0005	Coil Spring. . . . .	1	.15
35	646-0018	Tension Tube Spring. . . . .	1	.85
36	702-0011	Tension Shaft. . . . .	1	.55
37	456-0022	Oil Plug . . . . .	2	.10
38	779-0017	Oil Wick Assembly. . . . .	2	.25
39	R-649-0010	Gits Oiler . . . . .	1	.10
40	468-0006	Lock Bushing . . . . .	1	.30
41	R-815-2527	Lock Screw . . . . . 3/8-24 x 1-3/4	1	.10
42	R-684-0014	Oil Retainer . . . . .	1	.15
43	729-0043	Spacer . . . . .	1	.55
44	476-0022	Bearing Cap. . . . .	1	2.55
	555-0003	Complete Frame Assembly. . . . .	1	35.00

MISCELLANEOUS PARTS

45	694-0007	Motor Saddle . . . . .	1	2.70
46	R-810-0918	Saddle Screw . . . . . 1/4-20 x 1/2" Fil. Hd.	4	.05
47	442-0011	Tee Bolt . . . . .	1	.75
48	668-0008	Mounting Post Assembly . . . . .	1	2.85
49	R-766-0147-077	Washer . . . . .	1	.05
50	R-645-0031	Nut. . . . . 3/8-24 Thd.	1	.05
51	671-0017	Pulley No. 1 . . . . .	1	2.90
52	671-0018	Pulley No. 2 . . . . .	1	3.85
53	774-0040	Grinding Wheel . . . . . 2 x 1/4 x 1/4	1	1.45
54	774-0023	Grinding Wheel . . . . . 1-1/4 x 1/4 x 1/4	1	1.35
55	R-479-0019	Steel Carrying Case. . . . .	1	5.45
56	W-201	Mounted Wheel. . . . .	1	.50
57	W-160	Mounted Wheel. . . . .	1	.45
58	487-0016	Chuck Assembly . . . . . 1/8 Capacity	1	2.90
59	W-183	Mounted Wheel. . . . .	1	.45
60	R-788-0009	Wrench . . . . . 3/8 x 7/16 Openings	1	1.00
61	R-788-0027	Wrench . . . . . 9/16 Opening	1	1.00
62	R-429-0013	Belt . . . . .	1	1.25
63	502-0019	Wheel Collar . . . . .	2	.50
	Cat. No. 50-011	3 Oz. Can Dumore No. 0 Oil . . . . .	1	.50



After removing the dresser, set the work speed of the lathe for approximately 50 rpm which is a normal operating speed and ideal for most grinding conditions. Although this speed is suitable for many operations, the work rpm can be set to meet any requirements. Advance grinder slowly until wheel barely touches surface to be ground. Upon wheel contact with the workpiece, increase the feed on the lathe compound to .001" or any suitable feed selected and engage the traverse mechanism. When grinding to very close tolerances, redress the wheel as outlined above before making the final grind over the stock. Allow the wheel to spark out on this final grind by taking several passes back and forth over the piece, using the hand wheel to traverse the carriage.

Occasionally, when grinding the full length of a piece mounted between lathe centers, the grinder must be positioned to allow pulley end to clear tail stock. To do this, loosen mount-

ing post lock screw (36), and turn wheel end in toward workpiece sufficiently to clear tail stock with pulley. Lock grinder in position and dress wheel face parallel with work piece.

**SELECTING THE PROPER WHEEL** -- Probably no other single factor is more important to achieving good grinding results than the selection of a proper wheel. An ideal wheel is one in which the bond wears away as fast as the wheel grains are dulled. If the grains dull or wear down faster than the bond, the wheel is too hard and it will glaze. If the bond wears away before the grain, the wheel is too soft, and it will load.

These conditions can be overcome to a certain extent by speed adjustment. If the wheel appears too hard, increase the work speed. If it appears too soft, increase the wheel speed. However, the better solution to the problem is the selection of the proper wheel for the job.

The grain size and grit of a wheel generally determines the type of finish to be obtained. A coarse wheel is desirable for rapid stock removal. The grains deeply anchored in the bond allow greater depth of cut. Also, the greater porosity of a coarse wheel assures a cool cut. While an experienced operator can get a reasonably fine finish with a coarse wheel, a fine finish is easier with a finer grained wheel. On finishing grinds, allow the wheel to cut freely with a minimum feed. Heavy feed or pressure on finish grinds may cause overheating and possibly work distortion.

**IMPORTANCE OF BALANCED WHEELS** -- The selection of a balanced wheel is essential to precision grinding. Balanced wheels facilitate grinding to precision tolerances and in many instances prevent unnecessary service costs. Always Use Dumore Balanced Wheels.

**DRESSING A WHEEL -- INTERNAL GRINDING** -- To dress a wheel for internal grinding, clamp the diamond dresser onto the workpiece or a piece of stock chucked in the lathe. The diamond will normally face away from the operator toward the back of the lathe as illustrated in Fig. 9. With the grinder running, make several very light passes over the nib using the hand wheel to traverse. The dressed face should contact your workpiece when grinding internally as shown in Fig. 10. **THE SIDE ON WHICH THE WHEEL IS DRESSED IS ALWAYS THE CONTACT FACE.**

**FACE GRINDING** -- When face grinding, it is necessary to dress the wheel so that the surface contacting the workpiece is bevelled, as shown in Fig. 12. Clamp the diamond dresser onto the workpiece or a piece of stock chucked in the lathe with the diamond nib facing the operator. Remove the nib by loosening the locking set screw and insert the diamond into the right side slot so that it extends about 1/8" beyond the holder and faces to the operator's right as illustrated in Fig. 11. Pass the wheel lightly back and forth over the nib until a suitable bevel for the particular grinding operation is obtained. The grinding operation will determine the amount of bevel required. However, a small bevelled face will break down faster than a wider face and consequently will require redressing oftener.

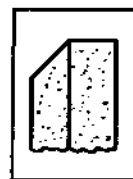


Fig. 12

TROUBLE	CAUSE	REMEDY
Vibration. Vibration.	Faulty lathe -- loose bearings Vibration of floor.	Readjustment of lathe. Shore up floor. Install lathe in more favorable location.
Vibration accompanied by excessive wheel wear and inaccuracy.	Inaccurate dressing.	Re-dress wheel. Make sure to dress parallel to work. Dress wheel face on side it contacts work.
Tapered work. Rapid wheel wear. Wheel loading.	Wheel too soft.	Change to harder wheel. Dress wheel oftener. Decrease work speed. Increase wheel speed.
Chatter	Bumpy belt-variation in thickness.	Change to new belt--preferably supplied by manufacturer.
Chatter, burning of work, wheel glazing.	Wheel too hard.	Change to softer wheel or increase work speed or decrease wheel speed.
Long regularly spaced chatter marks.	Unbalanced wheel.	Change to balanced wheel.
Chatter not traceable to other causes.	May be due to worn bearings or generally inadequate maintenance of grinder.	Complete maintenance check of grinder by manufacturer if practical.

Precision tolerances are only possible when utmost care is exercised in the operation and set-up of this tool. Occasionally external factors impede the path to precision. To assist you in detecting most of these factors, the above chart on work troubles, causes, and remedies has been prepared.

## MAINTENANCE INSTRUCTIONS

The Dumore Grinder is a precision tool and should be properly cared for to assure finest grinding results and long, trouble-free service.

**LUBRICATION** -- The motor requires no lubrication. It is equipped with grease-sealed ball bearings that are lubricated for the life of the bearing.

The spindle requires from 25 to 50 drops of Dumore No. 0 Hi-Speed oil every 10 hours of operation. The oil is added to the Gits snap cap oiler located on the grinder frame in front of the tool post. Although all spindles are oiled before leaving the factory, add 25 to 50 drops of No. 0 oil before operating the grinder to lubricate bearings in the event most of the oil has seeped through while in storage. Also, oil as above, if the grinder has not been in use for some time.

**BRUSHES** -- Normal brush life varies from 500 to 2,000 hours depending on the severity and continuity of service. Inspect brushes periodically and wipe clean before returning them to their respective brush holders if they are long enough for additional use. Each brush should

be returned to its exact position as before removal to prevent changes in the brush seating. Brushes should be replaced when worn to a 1/4" length.

Whenever brushes are replaced, the commutator should be turned down and undercut. New brushes on a badly worn commutator will spark excessively, giving very little wear and will have to be replaced again shortly. When brushes need replacement and the commutator is being turned down and undercut, disassemble the motor and clean it of all grit and grease.

**STORAGE** -- When not in use, keep tool in a clean, dry place. When storing for a long period of time, coat exposed metal parts with a rust-preventive grease.

**REPAIR SERVICE** -- This grinder is made with the highest quality material and workmanship and if not abused should give long and trouble-free service. If, for any reason, this grinder does not operate satisfactorily after the above precautions have been taken, return it immediately to your nearest Dumore service station or direct to The Dumore Company, Racine, Wisconsin to secure prompt and efficient service with original factory parts and methods.

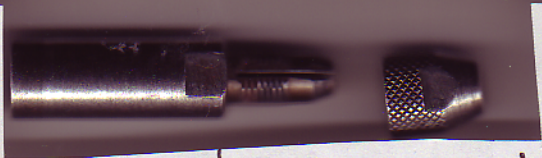
## GUARANTEE

All Dumore products are thoroughly checked and tested before shipment.

THE DUMORE COMPANY guarantees this product against imperfections in workmanship and material for a period of 90 days after purchase, and will replace without charge any part that proves defective during that period. Guarantee does not apply to parts failing due to ordinary wear, abuse, or accidental damage, and does not apply if the tool has been tampered with in any way. Defective materials in warranty should be returned PREPAID to THE DUMORE COMPANY -- RACINE, WISCONSIN, or to an authorized service station.

# THE DUMORE COMPANY, RACINE, WIS.

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