

DEPARTMENT OF THE ARMY TECHNICAL MANUAL

OPERATOR'S MANUAL

**GRINDING MACHINE, VALVE FACE,
BENCH MOUNTING, 9/32 INCH TO 11/16 INCH CHUCK,
0 TO 45 DEGREE VALVE
FACE ANGLE ADJUSTMENT, 115-VOLT, AC/DC,
60-CYCLE, SINGLE PHASE
(CEDAR RAPIDS MODEL "KWIK-WAY" KK)
(4910-5404679)**

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Section I. PREPARATION

1. Preparation of Valve Facing Machine

a. Cleaning. Clean machine thoroughly, removing all dust and grit collected in transit. See that motor is of the proper voltage and cycle for current available. Install 1/4" drain plug in base of coolant tank.

b. Valve Chuck. The chuck furnished as standard equipment with the machine has a capacity of .195" to .705" and each collet is

marked for its capacity range.

c. Assembly of Light Bulb and Reflector. Use a standard bulb, 75 watts or less. Moisten the bulb neck before slipping it through the grommet at the base of the reflector. After screwing the bulb in the socket, make sure that the air space between the shade and receptacle is equal on all sides. To clean reflector use mild soap solution and pat dry with a soft cloth.

d. Electric Motor Control. The toggle switch to the right of the operating handle controls the spindle motor. The toggle switch on the chuck housing controls the chuck motor. When the spindle slide is moved to the extreme right, power to both motors is interrupted by a SNAP-SWITCH. See figure 1.

e. Lubrication. The machine is thoroughly lubricated in the test department but we recommend that the customer lubricate the machine again before putting in service. Means have been provided for the convenient and generous lubrication of every moving part on the machine. If liberal amounts of the best grades of SAE-20 or 30 weight oil are used at regular intervals, the machine will stand up and give long trouble-free service.

- (1) **Grinder Spindle Slide Ways.** Four snap-lid oilers are provided for oiling the ways; two in front on top of the slide and two on the rear. Fill these cups at least once a week and more often if machine is used on continuous service.
- (2) **Chuck Slide Feedscrew.** There is a snap-lid oiler on the feedscrew hand-wheel bearing of the chuck slide. There is another snap-lid oiler in line with the screw at the rear of the chuck slide. These two oilers will lubricate the feedscrew nut and bearing (lubricate weekly).
- (3) **Chuck Slide.** There are two snap-lid oilers on the chuck feed slide which furnish lubrication to both sides of the ways. One is accessible when the chuck is rotated to flat or 0 position while the other on is clearly visible over the ways. Both of the snap-lid oilers carry oil to reservoirs in the ways and should be filled weekly or oftener depending upon usage.
- (4) **Surface Grinding Attachment.** Slide the rubber boot, on the surface grinder shaft, and place a few drops of oil on the shaft.
- (5) **Motors.** The spindle drive motor on this machine is ball bearing and lubricated for life so no additional lubrication is necessary. The chuck drive motor should be lubricated once every six months. One reservoir is located directly behind the fan on the motor and the

other on top of the drive housing just to the right of the chuck drive belt. Both of these oil holes are accessible by removing chuck housing cover.

- (6) **Chuck Bearing and Spindle Bearings.** The chuck bearings and spindle bearings on the machine are sealed and lubricated for life so additional lubrication is not necessary.

f. Coolant. The machine has an operating capacity of one gallon of coolant. A good grade of soluble oil is used, mixed to the manufacturer's specification. If honing oil is used cut about 25% with kerosene or high grade fuel oil.

2. Setting up the Valve Facing Machine

a. The valve grinding wheel. Is locked on the spindle with a special spanner nut (left hand thread) and a wrench for securing this nut is included with the accessories. Immediately behind and under the valve grinding wheel you will find a hole in the grinder spindle slide casting. The grinder spindle is drilled through at this point and the hex key provided with the machine can be inserted in this hole to lock the grinder spindle for removing and installing grinding wheels. A hex key is provided for removal of retaining screw for the surface grinding wheel (right hand thread).

b. Turning the Wheel. It is necessary, whenever installing a new wheel or re-installing a wheel that has been on the machine, to dress the wheel again after installation. The wheel must be dressed round after it is mounted on the spindle.

Move the diamond holder into position and lock securely with the lock screw. Adjust the diamond screw so the diamond will take a light cut. Move the grinding wheel across the diamond very slowly and with a uniform motion. Feed the diamond against the wheel by giving the diamond screw about 1/16 of a turn; then pass the wheel across the diamond. Two passes will usually put the wheel face in first-class condition, but the additional passes will probably be necessary when a new wheel is installed because the slight off-center condition must be completely eliminated on the first dressing when installing a new wheel.

c. Precautions. When Using the Diamond Dresser.

- (1) Take very light cuts. Heavy cuts may grind away the mounting and loosen the diamond.