

DEPARTMENT OF THE ARMY TECHNICAL MANUAL

OPERATOR'S MANUAL

GRINDING MACHINE, VALVE FACE

(K. O. LEE MODEL K403 CM)

(4910-540-4679)

Headquarters, Department of the Army, Washington, D. C.

2 September 1964

SECTION		Paragraph	Page
I.	GENERAL INSTRUCTIONS		
	Introduction-----	1	2
	Machine placement-----	2	2
	Assembling machine-----	3	2
	Lubrication-----	4	2
	Adjustments-----	5	3
	Replacement of parts-----	6	3
II.	OPERATION		
	Work head collet-----	7	4
	Setting grinding angle-----	8	4
	Dressing wheel face-----	9	4
	Dressing wheel side-----	10	5
	Chucking the valve-----	11	5
	Grinding valve face-----	12	5
	Butt grinding-----	13	5
	Rocker arm grinding-----	14	6
APPENDIX I	BASIC ISSUE ITEMS-----		9

SECTION I

GENERAL INSTRUCTIONS

1. Introduction

You are naturally anxious to start operating this machine but before actually grinding your first valve we urge you to follow carefully these instructions for setting-up and preparing the machine, then when you grind the first valve follow the operating instructions step by step and you will be more than pleased with the results.

2. Machine Placement

Your K. O. Lee Valve Refacer is a precision machine representing a considerable investment and good judgment in the placement of it will pay dividends. A K. O. Lee Valve Wagon is the ideal place to set up your machine but if you do not have one, select a spot where it will not be exposed to dust, grit, the danger of heavy objects being placed or dropped on it and where it will not be affected by the vibration of other machines. If placed on a bench, level the machine using metal or hardwood shims under the feet. If on a valve wagon bolt machine to top with holes provided.

3. Assembling Machine

Assembly of the K. O. Lee Valve Refacer is a simple operation, because all parts except a few specially packed to assure safe transportation are factory assembled.

a. The separate packing carton included contains the following parts for assembly.

- (1) *Shaft driven work head* (lubricate before using). Mount on rear stud on table, secure with slotted nut. Remove stop pin from rear of work head hand nut-you will find milled end to use as wrench in slotted nut.
- (2) *Flexible shaft*. Affix to coolant pump and work head and screw tightly by hand.
- (3) *Splash shield*. Mount on base in front of machine base.
- (4) *Table stop Screw*-screw into R.H. Side of table base, adjusts movement of table for controlled travel to left.
- (5) *Soluble oil concentrate* (1 pt can). See paragraph 6d for proper mixture.
- (6) *Work head stop pin*. Place in reamed

holes for desired degree setting on table back of work head base. Round side against work head for accurate angle, i.e. 45°; flat side against work head for minus 1°, i.e. 44°.

b. Balance of equipment represents accessory parts for use or for mounting as required.

- (1) *Rocker arm attachment* (universal cone-type). Mounts on forward stud on top table when operation is required.
- (2) *Diamond screw and holder*. Mounts on Rocker Arm and Diamond Dresser Attachment to dress wheel. Remove top cone assembly only.
- (3) *V-rest*. Mounts on forward table stud and positioned for grinding butts of valves using side of grinding wheel (on models without butt grinder).
- (4) *1/8-inch hex wrench*.

c. Now-that assembly has been completed, wipe the protective oil coating from machine and prepare for lubrication.

4. Lubrication

a. *Work Head*. This unit is shipped with oil ready for operation. If for any reason oil is not in unit, remove large screw plug on top of work head to oil worm drive and spindle bearings, fill and maintain to visible oil level line (see oil window) with Texaco Universal Gear Lubricant No. EP80, EP90, No. 70 or No. 50 motor oil or equivalent. DO NOT put soluble oil, provided with machine, in work head.

b. *Table Ways*. Position table for oiling ways by moving table to the left as far as possible and fill center cups and R.H. cups. Move table to right as far as possible and fill center cups and L.H. cups. There are four spring cap type oil cups on top of table which should be filled and maintained with (S.A.E. No. 10) oil weekly. These cups oil bottom and top table ways and rear bearing feed screw assembly.

c. *Feed Screw Assembly K403 and K403C Series*. The ball type oil cup on front top of base cares for the front bearing of this unit. Oil rear feed screw bearing by moving table to the front of machine exposing oil hole in base. Fill with S.A.E. No. 10 or equivalent. Also apply oil