

CHAPTER III

OPERATION OF LANDIS DIE HEADS

The instructions contained in this chapter apply to the various operations involved in making set-up changes, other than changing chasers, on Landis Die Heads.

SECTION 1

The operating instructions contained in this section apply only to Landis Hardened and Ground Die Heads (LANDMATIC, of the H and HH type, LANDEX, of the LLL type, and LANGO, of the VV and VVV type). See page 40.

(1)

TO REMOVE THE CHASER HOLDERS

To remove the chaser holders of the LANGO Heads, of the V type, or the LANDEX Heads, of the LLL type, loosen the adjusting ring locking screw and unscrew the size adjusting ring from the headbody. This will permit removal of the component rings and when the closing ring is moved rearward, the chaser holders become disengaged from the closing ring prongs and can be readily removed from their slots in the headbody.

To remove the chaser holders of a LANDMATIC Head, of the H and HH type, the size adjusting ring should be unscrewed so as to permit the front unit of the die head to be pulled forward. A forward tension should be kept on this unit as the adjusting ring is being unscrewed to prevent the ring from jamming against the closing handle of the die head. When the adjusting ring is disengaged from the headbody, the front unit can be removed from the shank unit. By moving the closing ring rearward on the headbody, the chaser holders can be readily disengaged from their headbody slots.

The chaser holder of the 1", 1½", 2" or 2½" VV LANGO Heads and of the 2" HH LANDMATIC Head can be removed by simply unscrewing the chaser holder screws. As these chaser holders are attached to slides in the headbody, the die head need not be removed from the machine for chaser holder changes.

Before replacing the chaser holders on a Hardened and Ground Die Head, care should be taken that the under surfaces of the chaser holders and the

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face of the die head are clean and free of bruises. Any bruises which are discovered may be removed by honing the surface lightly.

(2)

TO REPLACE THE CHASER HOLDERS

To replace the chaser holders of a ½" or ¾" LANGO Head, of the VV and VVV type, or any LANDEX Head, of the LLL type, insert the chaser holders in the dovetail slots of the headbody. These chaser holders are interchangeable and can be used in any position. Next, place the assembly, with the chaser holders in position, face down on a level surface. The chaser holders should then be adjusted in their slots so that the end of the key in the chaser holder is visible through the holder slot in the headbody. If the chaser holders have been properly positioned in their slots, the closing ring can be readily applied, and the prongs of the closing ring will mesh with the keys in the chaser holders. The other component rings are then applied with the adjusting ring being screwed on to the headbody to complete the assembly. This can best be done by assembling the head in the unlocked or open position.

To replace the chaser holders of a LANDMATIC Head, of the H and HH type, the holders should be applied to their respective slots in the headbody and the prongs of the closing ring engaged with the keys in the chaser holder slots as outlined above for the LANGO and LANDEX Heads. The front unit assembly of the die head is then applied to the shank unit by inserting the prongs or extensions on the rear of the headbody into the shank and then engaging the adjusting ring in the threads on the outside diameter of the headbody.

(3)

TO ADJUST THE HEAD TO SIZE

To adjust to size the LANGO Head, of the V type, the LANDMATIC Head, of the H type, or the LANDEX Head, of the L type, release the adjusting ring locking screw and turn the adjusting ring until the die head is opened or closed to the desired diameter. The adjusting ring is graduated in increments equal to .0005" and .001" on workpiece diameter depending on the size of the die head.

To adjust to size a LANDMATIC Head, of the H type that employs a latch locking mechanism for the adjusting ring, disengage the latch from the

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serrations in the adjusting ring. Rotate the adjusting ring until the chaser holders are opened or closed to the desired diameter. Each serration provides exactly .0005" diametrical adjustment, with the exception of the 2" H LANDMATIC and $\frac{5}{8}$ " HH LANDMATIC. Die Heads bearing Serial Numbers 5HH-01 to 5HH-533 which have serrations to provide a .001" adjustment in diameter.

SECTION II

The operating instructions contained in this section apply only to Landis Heat Treated Die Heads. See page 41.

(1)

TO REMOVE THE SHANK

These instructions apply only to LANDMATIC and LANDEX Heat Treated Heads.

To remove the shank of a LANDMATIC Head, Type A (rigid shank), back out the stop screws at the shank end of the head and withdraw the shank together with the locking pins from the head.



Figure 1

To remove the shank of a LANDMATIC Head, Type F (flexible shank), open the head, take off the operating ring at the shank end of the head. Drive the connecting pin retaining pin "B" into the bore of the shank to remove the shank. See Figure 1.

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To remove the shank of a LANDEX Head, Type J, open the head, take off the operating ring at the shank end of the head, drive the connecting pin retaining pin "B" into the bore of the shank and remove the shank as illustrated in Figure 2. The operating ring of the $1\frac{1}{4}$ " and 2" JN LANDEX Heads are removed in conjunction with the shank, and holes (see Figure 4) are provided in the operating ring to disengage the retaining pins.

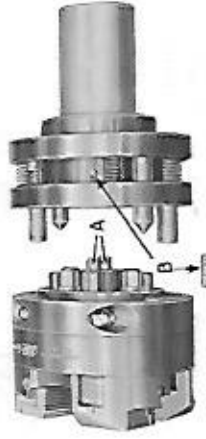


Figure 2

To remove the shank of the $1\frac{1}{4}$ " or 2" JN Type LANDEX, remove the connecting pin retaining screws through the operating ring access holes. To remove the shank of the $1\frac{3}{16}$ " JN Type LANDEX Heads, it is necessary to first disassemble the operating ring by removing the two stop screws at the rear of the head. Remove the connecting pin retaining screws and lift off the shank.

(2)

TO REMOVE THE CHASER HOLDERS

To remove the chaser holders of a LANCO, LANDMATIC or LANDEX Heat Treated Die Head in which the *chaser holders and trunnions are integral*, remove the head from the machine. The shank of LANDMATIC and LANDEX Heads should then be removed from the die head as previously described. Next, unscrew the trunnion adjusting nuts and the trunnion locking screws at the rear of the head and withdraw the chaser holders from the face of the head. The trunnion locking screws and adjusting nuts on the LANCO Heads can be reached in the rear of the head without disassembly. See Figure 2, Page 64.

To remove the chaser holders of LANCO, LANDMATIC, and LANDEX Heads of the above types, having chaser holders and trunnions separate, open the head, unscrew the chaser holder screws on the face of the die head and remove the chaser holders. See Figure 3.

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(3)

TO REPLACE THE CHASER HOLDERS

Before replacing the chaser holders on a die head, care should be taken that the under surfaces of the chaser holders and the front face of the die head are clean and free of bruises.

To replace the chaser holders of a LANCO, LANDMATIC or LANDEX Heat Treated Die Head, in which the *chasers holders and trunnions are integral*, open the head, insert the trunnions in the trunnion holes of the headbody and lock the trunnions in place with the trunnion adjusting nuts and the trunnion locking screws. The chaser holders must have the proper trunnion play. See page 63 for instructions on adjusting trunnions. If the chaser holders overlap making it impossible to replace them, it may be necessary to adjust the head larger in size to complete assembly.

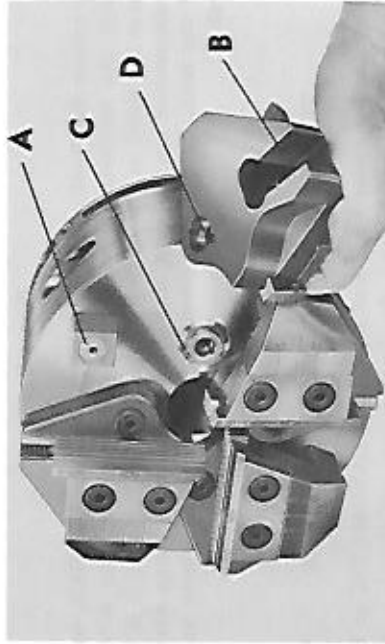


Figure 3

To replace the chaser holders of a Heat Treated Die Head in which the chaser holders and trunnions are separate, open the head. As in Figure 3, place the chaser holder on the face of the head so that the sliding block "A" enters the slot in the chaser holder "B". Seat the chaser holder on the protruding end of its trunnion with the trunnion pin "C" in position to enter the trunnion chaser holder screw. The trunnion play should be checked and reset, if necessary, when replacing the chaser holders. If the chaser holders overlap making it impossible to replace them, it may be necessary to adjust the head larger in size to complete assembly.

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(4)

TO REPLACE THE SHANK

The following instructions apply only to LANDMATIC Heads, Type A and F, and LANDEX Heads, Type J and JN.

To replace the shank of a LANDMATIC Head, Type A, place the shank against the head unit so that the graduations will be adjacent to the adjusting worm and replace the stop screws.

To replace the shank of a LANDMATIC Head, Type F, or a LANDEX Head, Type J and $\frac{1}{4}$ " JN, place the shank against the head unit so that the graduations will be adjacent to the adjusting worm. Then drive the connecting pin retaining pins "B" into their holes "A" and replace the operating ring. (See Figures 1 and 2). The shank of the $1\frac{3}{16}$ ", $1\frac{1}{4}$ " and 2 " JN LANDEX are replaced in the same manner as described, however, connecting pin retaining screws and not retaining pins are used.

(5)

TO ADJUST THE HEAD TO SIZE

To adjust to size any LANCO, LANDMATIC or LANDEX Heat Treated Die Head, excepting the 4DE LANDMATIC, place the adjusting wrench over



Figure 4

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the adjusting worm as shown in Figure 4. By turning the wrench, the proper index mark on the outside diameter of the die head is brought to the desired size graduation. The adjusting worm has a micrometer type dial to facilitate precision adjustment. It is desirable, in making the final size adjustment, that the adjusting worm be turned in a direction which will close the die head toward a smaller diameter. The adjusting worm is self-locking and need not be locked in position after the size adjustment has been made.

(6)

ATTACHMENTS FOR LANDMATIC HEADS

To operate the Roughing and Finishing Attachment of a 3" or 4" A type LANDMATIC Head, place the adjusting driving pin handle in the position shown in Figure 5. In this position, the die head will be set for



Figure 5

cutting a right hand thread in one pass or for taking the roughing cut of a right hand thread. The adjusting driving pin handle must occupy a position diametrically opposite to that shown in Figure 5 for making the finishing cut of a right hand thread. The position of the adjusting driving pin handle for left hand threads is the reverse of the position for right hand threads.

To operate the LANDMATIC Taper Attachment Head, Type C, close the die head, and mount an adjustable bar to some stationary part of the machine to retard the cam carrier as the die head advances onto the work. See

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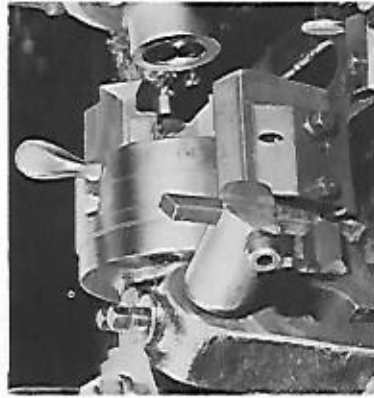


Figure 6

Figures 6 and 7. The adjustable bar must be set to contact the cam carrier just as the part to be threaded enters the die. Head closing action can be accomplished automatically by a closing cam (see Figure 7) or by hand. The head must clear the adjustable bar on its return travel before it can be closed.

The maximum length of the tapered thread which can be cut is limited to the length of the cam. (See page 50). Shorter thread lengths can be obtained merely by reducing the travel of the cam. The nut at the rear of the cam carrier controls this travel. See

Figure 7. The adjustment for thread length limits the forward travel of the cam carrier and insures threads of uniform diameter.



Figure 7

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TABLE OF MAXIMUM LIMITS FOR TAPER, PITCH AND THREAD LENGTHS WHICH CAN BE CUT WITH LANDMATIC TAPER ATTACHMENT HEADS

TABLE I

Size of Head	Maximum Taper Inches per Foot	Maximum Coarse Pitch		Maximum Thread Length	
		Thread per Inch	M/M	Inches	M/M
3/8"	1 1/2	9	2.5	1 1/8	27.6
1/4"	2	7	3.5	1 1/2*	38.1
2"	2	7	3.5	2 **	50.8
3"	2	6	4.0	2 1/2**	63.5
4"	2	6	4.0	3 1/2†	81.9
6"	3	4	6.0	5	127.0

* Special cam for 3" thread length.
† Special cam for 5" thread length.

** Special cam for 3 1/2" thread length.
Straight cam required for straight threading.

(7)

TO MANUALLY OPEN OR PULL OFF THE LANDMATIC HEAD

The following instructions apply only to the F type LANDMATIC Heat-Treated Die Head.

After making a set-up, it is recommended practice to manually open and close all LANDIS Die Heads several times to determine whether the head is functioning properly.

The F type LANDMATIC Head can be easily opened manually either in its machine position or held in a vise. Insert a pin in the hole located in the bottom of the closing ring. By pulling the closing ring forward with the die head closing handle and the pin (Figure 8), the locking pins are disengaged from the locking pin bushings in the closing ring. The head will then open, the head opening spring rotating the closing ring which pivots the chaser holders into their open position.

If the head fails to open, check that it is not already in the open position.

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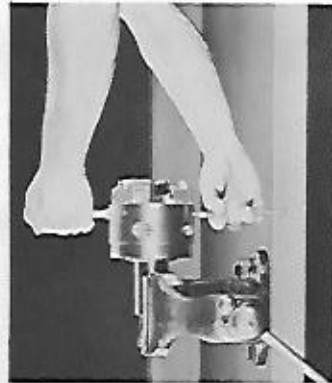


Figure 8

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(If the closing handle will not move, the head is closed and can be opened as previously described).

SECTION III

The instructions contained in this section cover the operation of *Landis Stationary Pipe Die Heads*.

Complete instructions concerning the removal and the setting of the chasers employed in Landis Stationary Pipe Die Heads are given in Chapter II, Page 31.

(1)

TO REMOVE THE CHASER HOLDERS

The chaser holders of any Landis Four-Chaser Stationary Pipe Die Head are removable. The chaser holders of Landis Six and Eight Chaser Stationary Die Heads are built into their respective headbodies and as these chaser holders cover the entire range of each die head, it is unnecessary to remove them except for inspection and cleaning.

To remove the chaser holders of a Landis Four-Chaser Stationary LAN-PIPE or LANSTA Die Head unscrew the chaser holder screws in the face of the chaser holders and remove the holders from their trunnion or chaser holder slides.

The chaser holders of the LITTLE LANSTA Heads are changed by removing the chaser holder retaining plate and lifting the holders from their slots in the headbody.

(2)

TO REPLACE THE CHASER HOLDERS

Before beginning the following instructions, be sure that all surfaces are free of foreign matter and not bruised.

Before replacing the chaser holders of a Landis Four-Chaser Stationary Pipe Die Head or LANPIPE Head, place the holders on the face of the head so that the sliding block enters the slot in the chaser holder. Seat the chaser holder on the protruding end of the trunnion with the trunnion pin in position and secure it firmly to the trunnion by means of the chaser holder screw. See Figure 3. The trunnion play should be checked when replacing the chaser holders. Instructions for adjusting trunnion play are given on page 63.

To replace the chaser holders on the LANSTA Head, position the holder on any chaser holder slide and secure by means of the chaser holder screws.

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