

## CHAPTER II

### SETTING LANDIS TANGENTIAL CHASERS

The instructions contained in this chapter apply to the setting of the chasers of all Landis Die Heads.

To obtain the most efficient results, it is necessary that the chasers seat properly in the chaser holders and that the cutting edges of the chasers are set uniformly with the correct gage position.

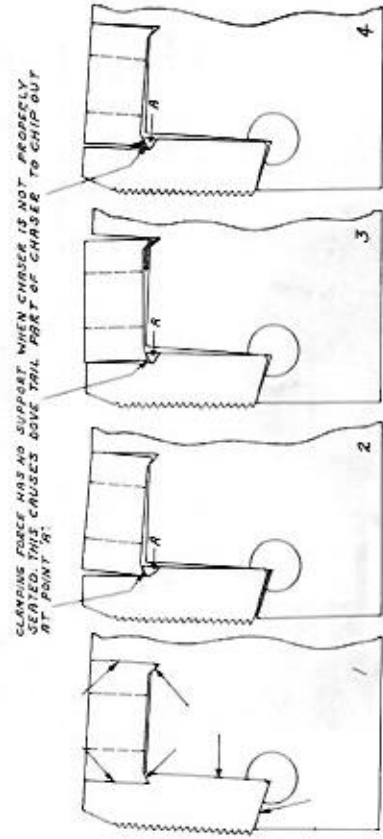


Figure 1A

Figure 1B

Figure 1C

Figure 1D

The chasers must seat firmly and properly in the chaser holders as in Figure 1A. This condition can be obtained only if the chasers, chaser holders, and chaser clamps are clean and free of bruises. The accumulation of dirt or cuttings in the dovetail of the chaser, in the chaser seat of the chaser holder (Figure 1B) or under the chaser clamp (Figure 1C), or bruises on the chaser holder or chaser clamp (Figure 1D) will cause the chaser dovetail to chip and allows improper seating resulting in mis-alignment. Mis-alignment will cause the chasers to produce a "side-shaved" or "wide bottomed" thread and will prevent the chasers from taking an equal distribution of the cut. This condition results in rapid chaser wear and may cause chaser breakage. It is good practice to remove the chaser clamps occasionally to inspect and clean both the clamps and the chaser holders.

## SECTION I

## TO REMOVE THE CHASERS

Release the chaser clamp screws sufficiently to permit the chaser to be slipped from the chaser holder. It is not necessary to completely remove the clamp from the chaser holder, except for cleaning or inspection.

## SECTION II

## TO SET THE CHASERS

Landis Chasers are positioned in the chaser holders of the various die heads by means of gages. Depending upon the type of head, these gages are either of the hooked or straight edge style. With either style of gage, the chasers are easily and accurately located so that the cutting edges of all chasers will contact the rotational centerline of the workpiece at the point of chaser tangency. This method of setting the chasers has the advantage not only of permitting the cutting edges to be placed slightly ahead or back of center, if necessary, (see Section IV, page 37) but also of making it possible to use chasers of varying lengths in the same set. See Figure 2, page 8.

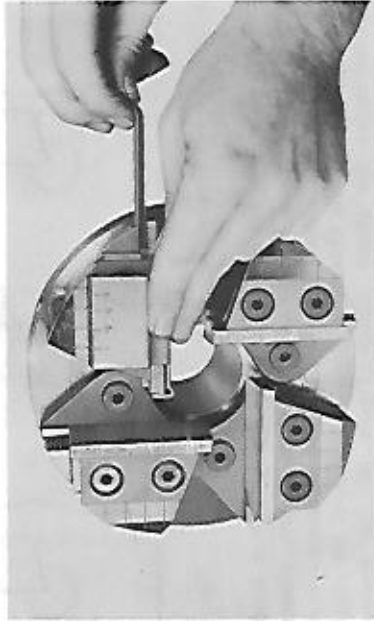


Figure 2

All Landis Die Heads of the trunnion type (Heat Treated Die Heads — see page 41) employ a hooked chaser setting gage as illustrated in Figure 2, with the exception of the  $\frac{1}{2}$ " DE LANDMATIC Die Head which utilizes a straight edge type. The chaser is inserted in the chaser holder and the clamp

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screw is tightened sufficiently to hold the chaser in position. Then, by means of the hex wrench in the chaser abutting screw, move the chaser to the correct cutting position as determined by the setting gage (see Figure 2). Tighten the chaser clamping screws to complete the operation. Gage lines with a given diameter or range of diameters are stamped both on the chaser holder and on the chaser setting gage. The alignment of the proper setting line on the gage for the diameter to be threaded with the corresponding line on the chaser holder establishes the normal cutting position of the chaser.

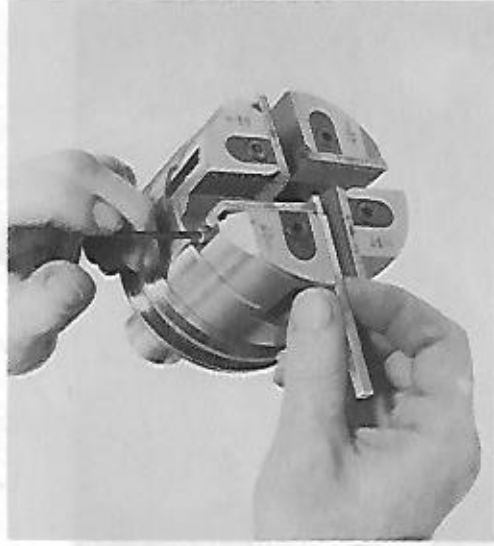


Figure 3

The chaser setting gages furnished with Hardened and Ground Die Heads, as shown on page 40, are of the straight edge type. This type of gage is also furnished with  $\frac{1}{2}$ " DE Heat Treated LANDMATIC Die Heads as well. Similar gages are also furnished with the LANSTA Stationary Heads and with the Gib Type and WX Type of Solid Adjustable Heads. The setting of the chasers in these die heads is accomplished by placing the chaser setting gage on the finished surface of the chaser holder at a right angle and adjacent to the cutting edge of the chaser, as illustrated in Figure 3. It is necessary that the surface of the gage stamped with the diameter to be threaded is placed against the chaser holder. The chaser is moved forward by a hex wrench inserted in the chaser abutting screw until the crest of the first full thread following the throat section of the cutting edge touches the off-set surface of

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the gage. It is then clamped into position by the chaser clamp and clamping screw.

For cutting right hand threads on any Landis Die Head, the numerical order in which the chasers are set must be clockwise when facing the head. For cutting left hand threads, the order must be counter-clockwise. For additional information on left hand threading see Chapter V, page 58.

A straight edge gage is employed to set the chasers in all Landis six or eight-chaser Stationary Pipe Die Heads, as shown in Figure 4. The first step in



Figure 4

setting the chasers is to insert the No. 1 chaser in any chaser holder and tighten the clamp screw sufficiently to hold the chaser in position. The straight edge is then laid across the two finished surfaces on the side of the chaser holder adjacent to the cutting edge of the chaser. The chaser is drawn forward by means of the chaser adjusting screw, until its cutting edge comes in contact with the straight edge. This operation is shown in detail in Figure 4. The straight edge must have contact with the chaser on the crest of the thread form of the first full thread following the throat section. All chaser clamp screws should be secured tightly after the chasers have been set to the

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correct gage position. The front clamp screw, the screw nearest to the cutting end of the chaser, should be tightened first to insure solid seating of the cutting end of the chaser. The chaser adjusting screws should be tightened firmly against each chaser after the chasers have been set in the holders. The four sides of the straight edge's gage end is offset by  $.010''$ ,  $.015''$ ,  $.020''$  and  $.025''$ , respectively. The use of the  $.010''$  offset is recommended. However, it may be necessary, due to material, the distance the end of the pipe extends beyond the face of the chuck, rigidity, etc., to set the chasers ahead in increments of  $.005''$  until a quality thread is produced.

The Landis Receding Chaser Pipe Die Head employs a special chaser setting gage with an adjustable gage point, which permits setting the chasers back of cutting center. See Figure 5 showing the gage as used for both auxiliary (top) and standard holders. This practice is recommended with the Receding Chaser Die Head, due to the unusually free cutting action obtained through use of a taper attach-

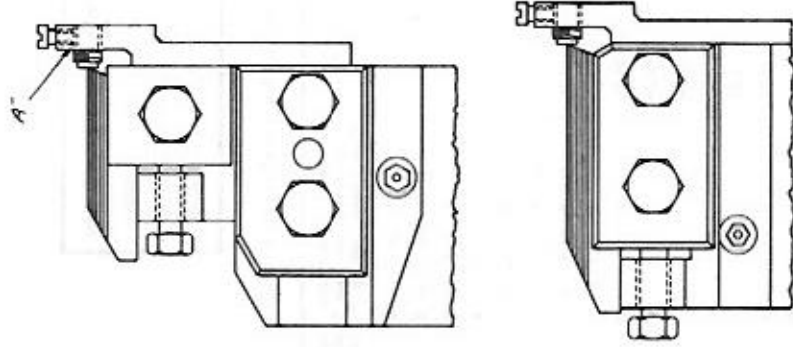


Figure 5



Figure 6

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ment, and is of material benefit as it increases chaser life and improves thread finish. The chaser adjusting mechanism of the Receding Chaser Pipe Die Head is different from the mechanism employed on the Standard Stationary Pipe Die Head, in that serrations on the front surface of the chasers fit into corresponding serrations in the chaser clamps. By this means, the entire clamp and chaser assembly is moved forward when adjusting the chaser to its correct cutting position as in Figure 6. The base of the offset surface of the gage (A in Figure 5) is designed to establish the cutting edge of the chaser directly on the center of rotation. For best results, it is desirable to set the chasers back of center in varying amounts, depending upon the diameter of the pipe. The following setting positions are recommended:

Setting The Chasers — $4\frac{1}{4}$ " Receding Chaser Pipe Machine		
1.650" to 1.900" O.D. Pipe	"A" $\frac{1}{8}$ " back of center	
2.375" to 2.875" O.D. Pipe	"A" $\frac{3}{8}$ " back of center	
3.500" to 4.500" O.D. Pipe	"A" $\frac{1}{2}$ " back of center	

SETTING THE CHASERS —  $8\frac{1}{8}$ " to  $13\frac{1}{8}$ " RECEDING CHASER PIPE MACHINES

Size of Pipe	Material — Casting and Serrates Tubing Chaser Setting Position	Size of Pipe	Material — Wrought Iron, Lap Weld and Butt Weld Pipe Chaser Setting Position
$2\frac{7}{8}$ " O.D.	$\frac{1}{8}$ " B. of C. of R.	$2\frac{7}{8}$ " O.D.	$\frac{1}{8}$ " B. of C. of R.
$3\frac{1}{2}$ " O.D.	$\frac{1}{8}$ " B. of C. of R.	$3\frac{1}{2}$ " O.D.	$\frac{1}{8}$ " B. of C. of R.
4" O.D.	$\frac{3}{8}$ " B. of C. of R.	4" O.D.	$\frac{3}{8}$ " B. of C. of R.
$4\frac{1}{2}$ " O.D.	$\frac{3}{8}$ " B. of C. of R.	$4\frac{1}{2}$ " O.D.	$\frac{3}{8}$ " B. of C. of R.
$4\frac{1}{2}$ " O.D.	$\frac{3}{8}$ " B. of C. of R.	$4\frac{3}{4}$ " O.D.	$\frac{3}{8}$ " B. of C. of R.
$5\frac{1}{8}$ " O.D.	$\frac{3}{8}$ " B. of C. of R.	$5\frac{1}{8}$ " O.D.	$\frac{3}{8}$ " B. of C. of R.
$6\frac{1}{8}$ " O.D.	$\frac{1}{4}$ " B. of C. of R.	$6\frac{1}{8}$ " O.D.	$\frac{3}{8}$ " B. of C. of R.
7" O.D.	$\frac{3}{8}$ " B. of C. of R.	7" O.D.	$\frac{3}{8}$ " B. of C. of R.
$7\frac{1}{2}$ " O.D.	$\frac{3}{8}$ " B. of C. of R.	$7\frac{1}{2}$ " O.D.	$\frac{3}{8}$ " B. of C. of R.
$8\frac{1}{8}$ " O.D.	$\frac{3}{8}$ " B. of C. of R.	$8\frac{1}{8}$ " O.D.	$\frac{3}{8}$ " B. of C. of R.
$8\frac{3}{8}$ " O.D.	$\frac{3}{8}$ " B. of C. of R.	$8\frac{3}{8}$ " O.D.	$\frac{3}{8}$ " B. of C. of R.
9" O.D.	$\frac{3}{8}$ " B. of C. of R.	9" O.D.	$\frac{3}{8}$ " B. of C. of R.
$9\frac{3}{8}$ " O.D.	$\frac{3}{8}$ " B. of C. of R.	$9\frac{3}{8}$ " O.D.	$\frac{3}{8}$ " B. of C. of R.
$10\frac{1}{4}$ " O.D.	$\frac{3}{8}$ " B. of C. of R.	$10\frac{1}{4}$ " O.D.	$\frac{3}{8}$ " B. of C. of R.
$11\frac{1}{4}$ " O.D.	$\frac{3}{8}$ " B. of C. of R.	$11\frac{1}{4}$ " O.D.	$\frac{3}{8}$ " B. of C. of R.
$13\frac{1}{8}$ " O.D.	$\frac{1}{2}$ " B. of C. of R.	$13\frac{1}{8}$ " O.D.	$\frac{3}{8}$ " B. of C. of R.

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A screw which serves as a gage point on the setting gage furnished with the Receding Chaser Pipe Die Head is adjustable, reducing the off-set, to permit these variations in chaser setting. When using the chaser setting position outlined above, it is necessary that the pipe be chucked in the grips so as to allow not more than  $8$ " of the pipe to extend beyond the front face of the chuck.

SECTION III

TO CHECK THE CUTTING POSITION OF THE CHASERS

The setting gage will usually give the correct cutting position for the chasers of all Landis Die Heads. However, when the rake and lead angles are varied, or when the throat of the chaser is other than standard, a slight deviation either forward or backward from the gage setting is sometimes necessary to establish the chasers at their correct cutting position on the centerline. In all cases, the amount of movement for each chaser should be uniform.

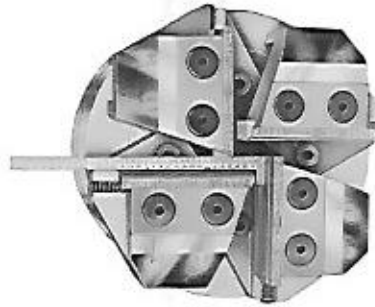


Figure 7

To check the chaser position, with respect to the centerline after they have been set by the gage, close the die head and adjust it to the diameter to be threaded. Then, for example, place a scale between the first full tooth and the preceding tooth on the throat section of chaser No. 2. See Figure 7. The edge of the scale must be flush with the cutting edge of the chaser at the pitch line. If the Nos. 2 and 4 chasers are properly set, the same edge of the scale will have contact with the No. 4 chaser at its pitch line and will be parallel to the No. 3 chaser. This method of checking the chaser cutting position can also be used in case the hooked section of the gage is bent out of position.

SECTION IV

VARIATIONS FROM THE GAGE POSITION

A variation in either direction from the gage position is permitted, providing the variation is uniform. In fact, such variation is sometimes recommended, the controlling factors being the material to be threaded, the rigidity

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and the manner in which the work is gripped, the alignment between the die head and the work, etc.

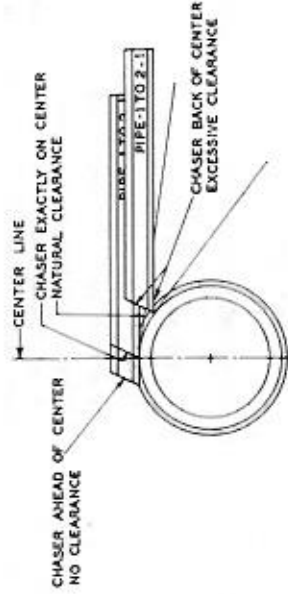


Figure 8

However, if the chasers are too far forward in the chaser holders, they will tear the top of the thread, become over-heated and show excessive wear. When set too far back in the chaser holders, they will dig into the work and will produce a chattered, or "out of round" thread (see Figure 9).