



LINDEMAN
TWO-WAY PLOW
LP-16-TW



ASSEMBLY
and OPERATING
INSTRUCTIONS



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Install only **GENUINE REPAIR** parts purchased from your **FERGUSON** dealer. These parts are manufactured with the same care and precision exercised in production of the original implements. This insures exact dimensions, uniformity, hardness, quality of material and interchangeability of parts.

2-WAY PLOW

LP-16-TW

FOR side hill work, contour farming, gardening and in plowing irrigated fields, and other conditions where the soil should be turned in one direction and dead furrows eliminated, the two-way plow is particularly adaptable.

THE LINDEMAN two-way plow utilizes the Ferguson system and linkage. It is a unit implement carried on the tractor, operated by the Ferguson system and has the advantages of the Ferguson safety features when obstructions may be encountered. It has ample trash clearance under the beam, and can be quickly and easily attached or removed the same as all Ferguson implements.

THE LINDEMAN two-way plow is reversed by rotating a single beam to which both plow bottoms are attached. It is exactly as if you had two fish-hooks on a single shank. Twirl this shank with your fingers and you reverse the hooks.

THE LINDEMAN plow is lifted and reversed by the fingertip Ferguson control.

Study and retain this Instruction Book. Your Ferguson dealer will be glad to answer any questions and explain any features that may not be clear.

WARNING: DO NOT REVERSE TRACTOR WITH PLOW IN THE GROUND. TO DO SO WILL DAMAGE COULTER HANGER.

ASSEMBLY INSTRUCTIONS

The plow is shipped completely assembled except for bases and coulters assembly:

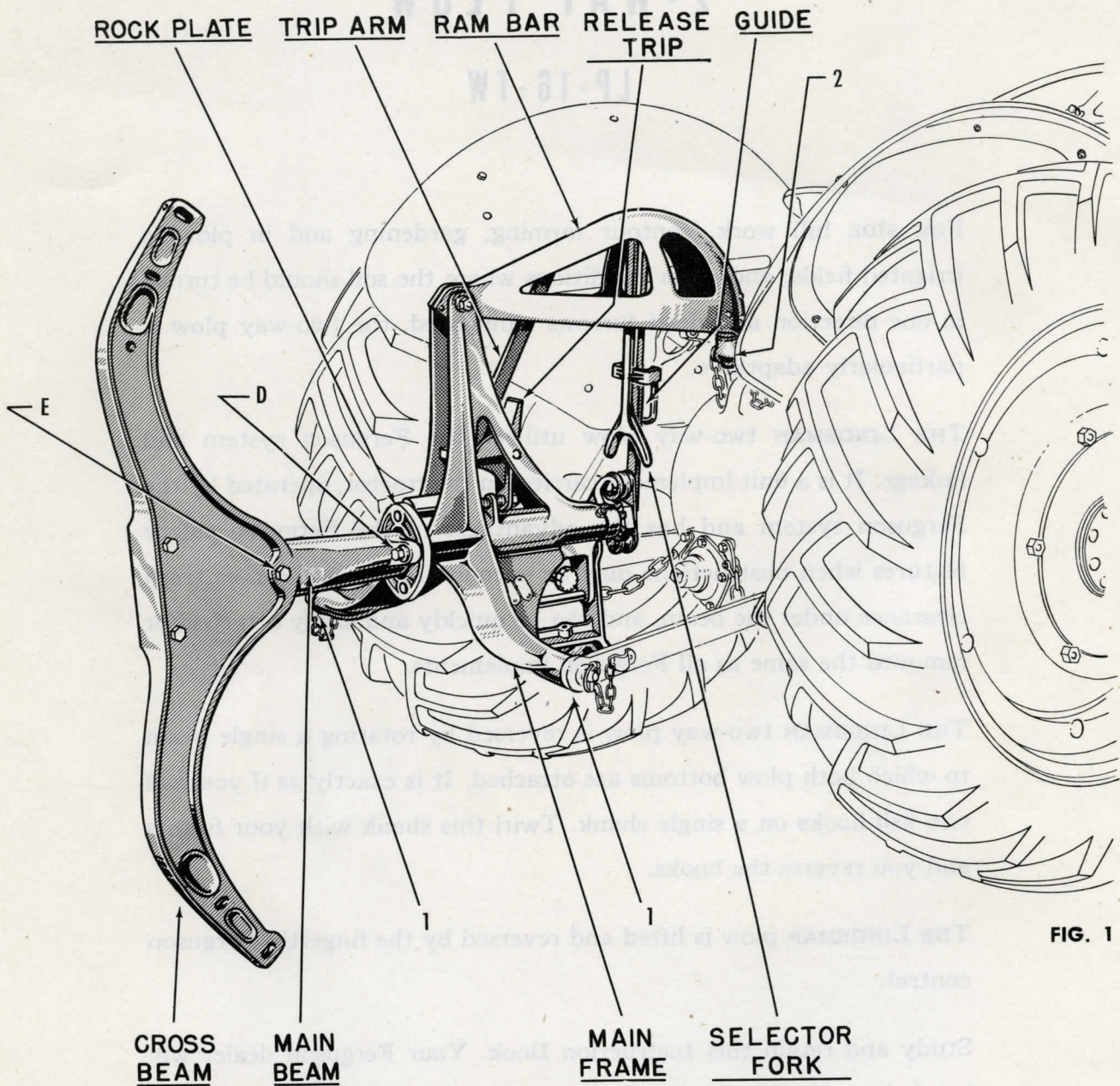
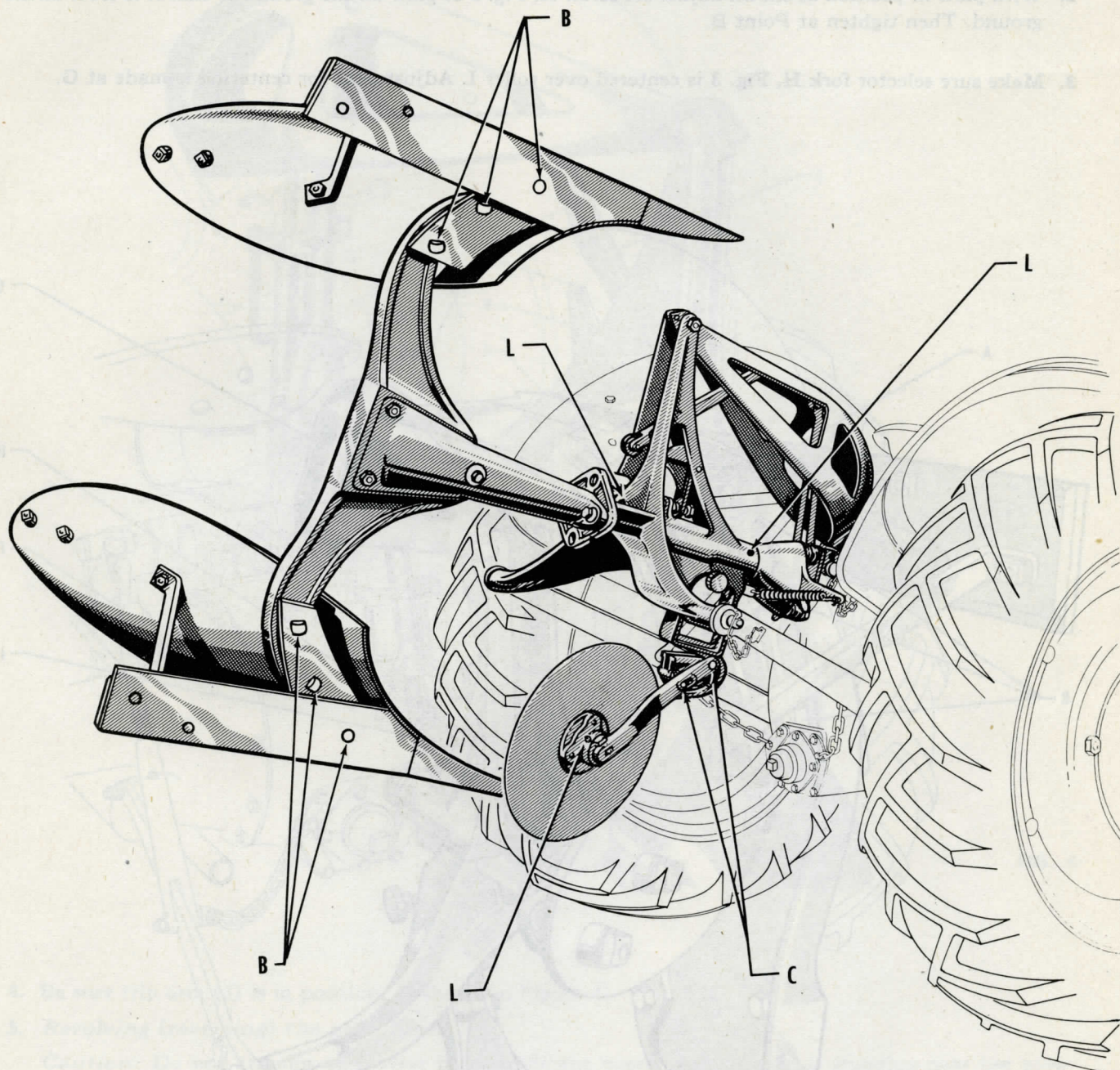


FIG. 1

TO ASSEMBLE:

1. Place the tractor and plow on level ground.
2. Remove the standard top link from the tractor. Lindeman special top link assembly is standard part of the plow.
3. Attach the plow frame to the tractor in usual manner, as shown in Fig. 1, at points 1 and 2.

4. Bolt the plow bases to the plow frame as shown in Fig. 2 at points B leaving nuts finger tight.
5. Bolt rolling coulter assembly in place at Points C, Fig. 2.



LUBRICATION

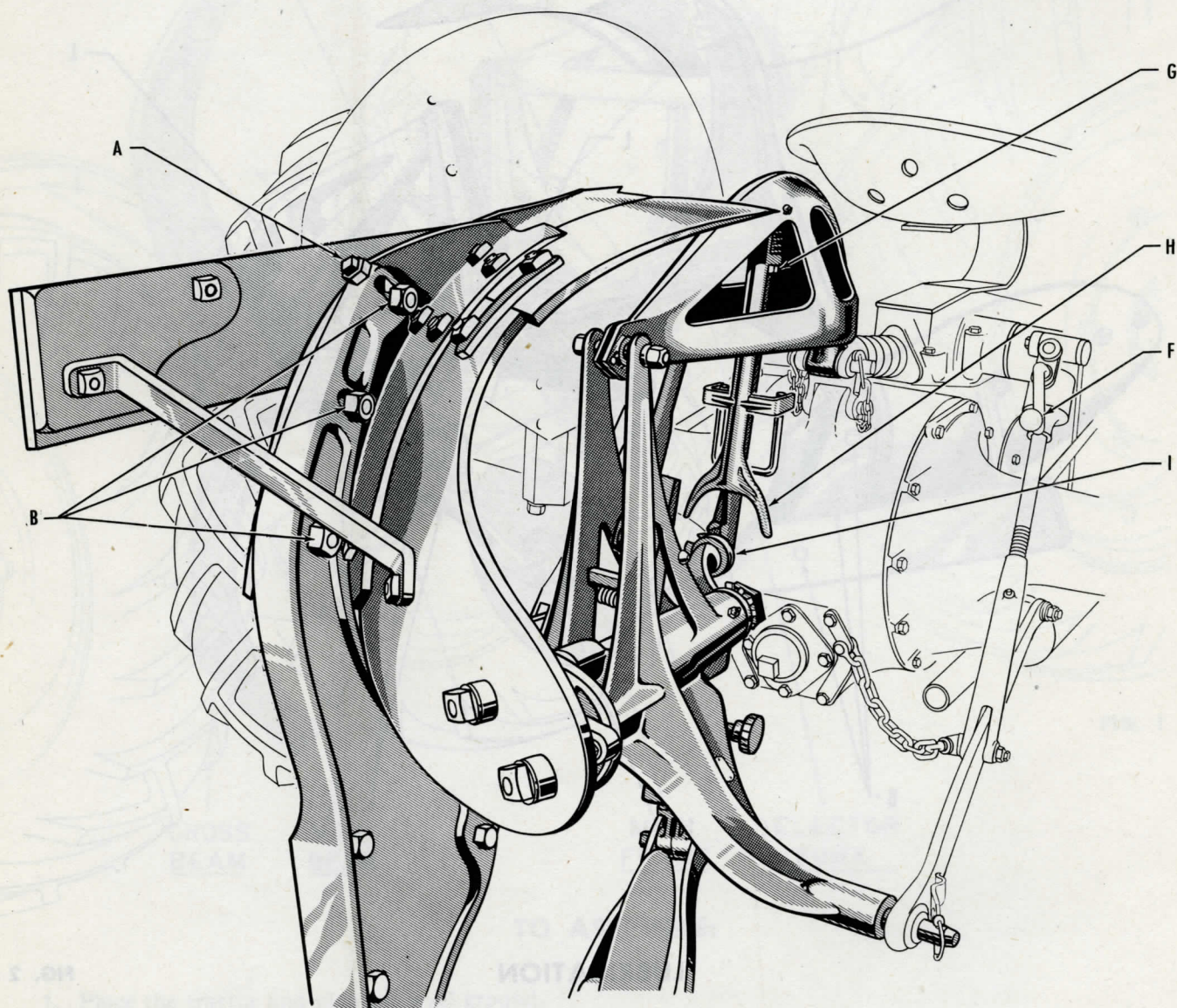
FIG. 2

With the tractor grease gun lubricate points L, Fig. 2, at least twice daily.

Coat earth polished parts with rust proof compound when plow is to be idle for a few days or before storing.

PLOW ADJUSTMENT

1. Turn leveling crank F, Fig. 3 until plow drawbar is level.
2. With plow in position as shown adjust set screw A, Fig. 3 of plow on the ground so that it is level on the ground. Then tighten at Point B.
3. Make sure selector fork H, Fig. 3 is centered over roller I. Adjustment for centering is made at G.

**FIG. 3**

Safety blocks, illustrated below, are cast iron, especially designed to break before excessive strain might result in breakage of Coulter Assembly.

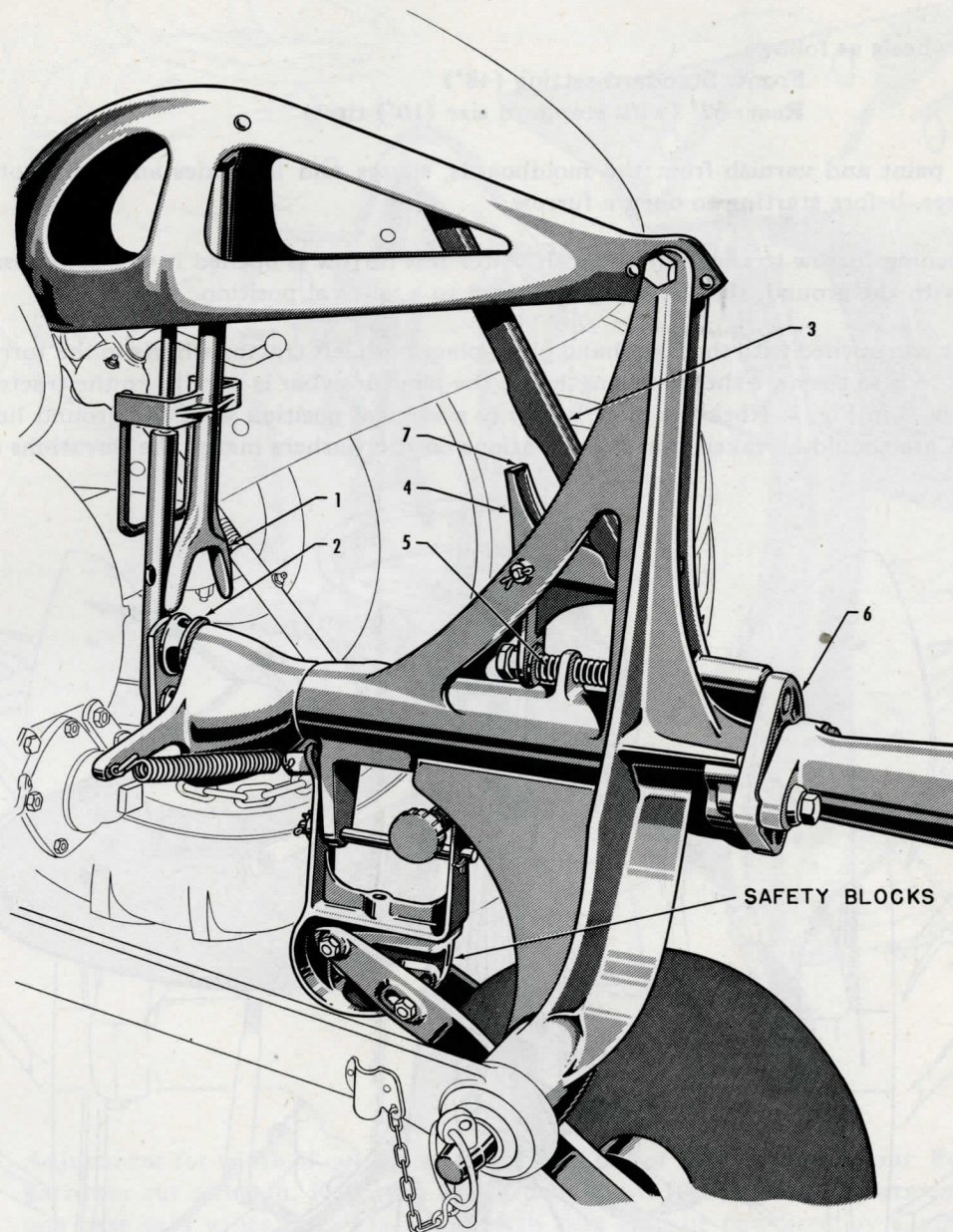


FIG. 4

4. Be sure trip arm (3) is in position, as shown in Figure 4.
5. *Revolving (reversing) the plow bases.*

Caution: Do not attempt to reverse bases while the operator or anyone is standing near the plow. The operator should be on the tractor seat.

The plow bases are reversed by the following procedure: Start the engine and move the finger-tip control lever into the raised position. This raises the plow and the turning arm (1) contacts the cam roller (2). Trip bar (3) presses on the base of the trip (4) and pulls the pin (5) out of lock hole (6). Continued lifting of the plow keeps turning arm (1) pushing on cam roller (2). Pushing at this point revolves the plow to the reverse position. The top of the trip (4) strikes the bar (3) at point (7). This releases pin (5) and the spring forces the pin into the lock hole at (6). The plow is securely held to this position until it is raised again.

Level the plow the same as described on Page 4. Both bottoms must be level to turn uniform furrow slices.

OPERATING INSTRUCTIONS

1. Set tractor wheels as follows:

Front: Standard setting (48")

Rear: 52" (with standard size (10") tires)

2. Remove all paint and varnish from the moldboards, shares and landsides and from both sides of the rolling coulter, before starting to open a furrow.
3. Plow the opening furrow to the desired depth. After this furrow is opened it will be necessary to set the plow level with the ground, that is, bring the beam to a vertical position.
4. If the furrow was opened with the right hand plow, place both left tractor wheels in the furrow, adjust the drawbar lift rods so they are the same length and the plow drawbar is parallel to the tractor axle. Loosen the cap screw D in Fig. 5. Rock the plow beams to a vertical position with the ground line and tighten cap screw. Care should be taken that the serrations on the washers match the serrations on the locking plate.

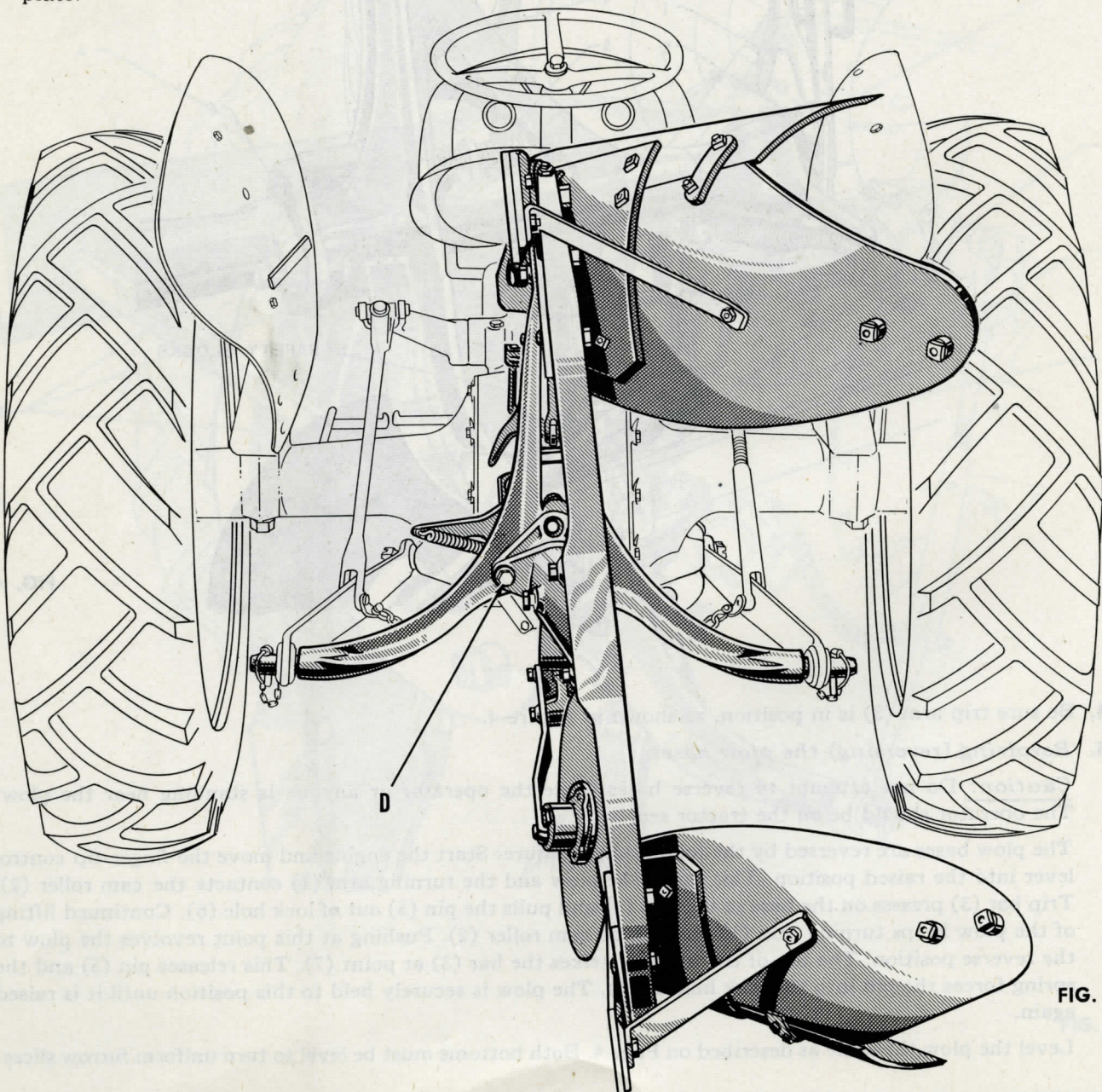


FIG. 5

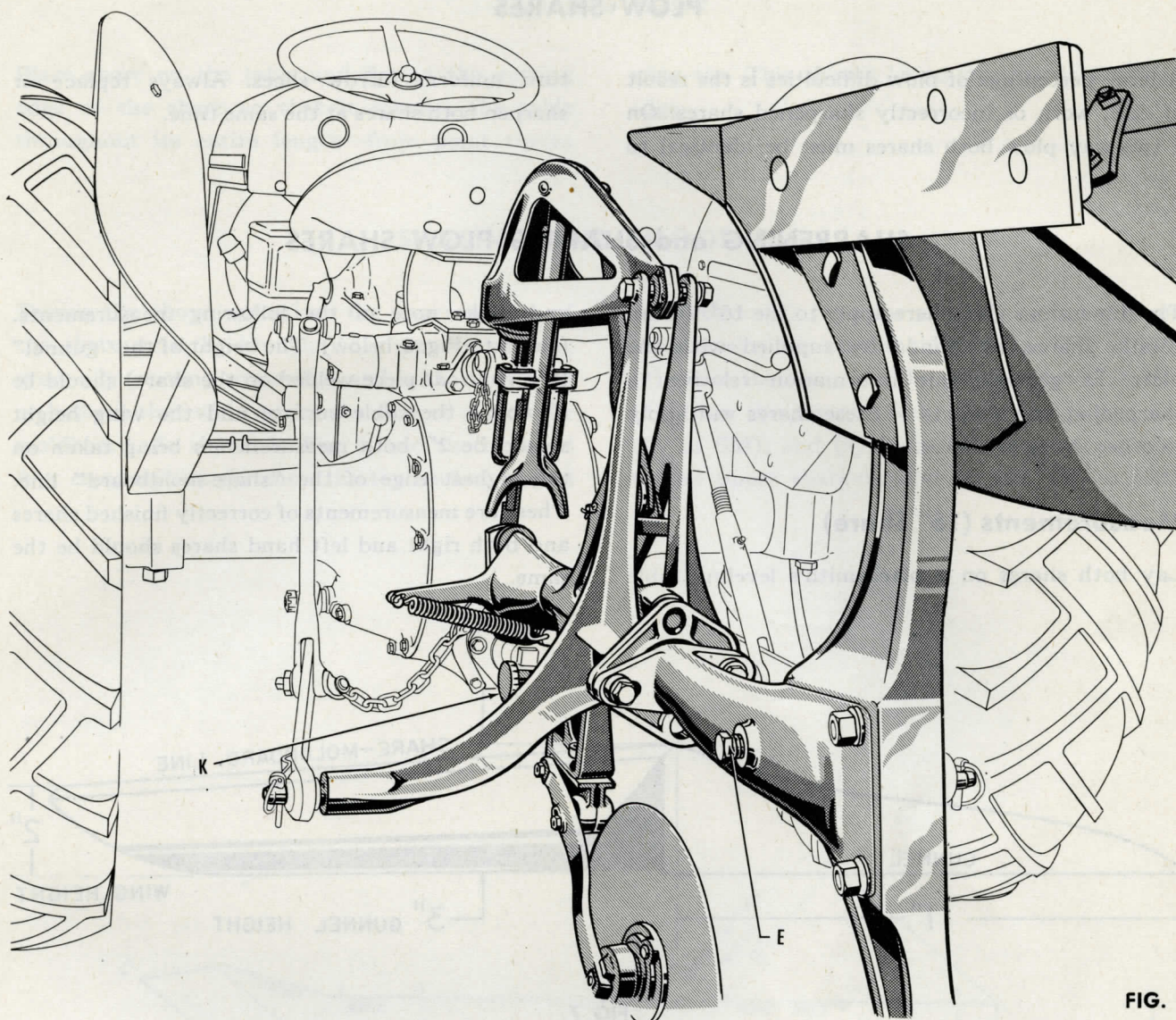


FIG. 6

5. Adjustment for width of cut is made at E, Fig. 6. For wider cut screw out. For narrower cut screw in. Keep this adjustment tight. If, after this adjustment, one base cuts wider than the other, both cuts may be equalized by simply turning the leveling crank.
6. Adjustment of the coulter cut in relation to the furrow wall is made at K, Fig. 6. On the left side for right plow, on the right side for left plow. Screw out for narrow cut and in for wider cut.
7. After the plow has been properly adjusted and all bolts securely tightened, all further changes made necessary when opening furrows and controlling the depth of the plow can be made by the leveling crank and finger tip control system.
8. When opening furrows with right hand plow, screw leveling crank up about 12 turns, but if using left hand plow screw the leveling crank down approximately 12 turns. Turn crank to the level position for plowing after furrow has been opened.

PLOW SHARES

A large percentage of plow difficulties is the result of dull, worn or incorrectly sharpened shares. On a two-way plow both shares must be identical to

turn uniform furrow slices. Always replace or sharpen both shares at the same time.

SHARPENING and SHAPING PLOW SHARES

The dimensions given here apply to the 16" Vulcan Alfalfa shares, as standardly supplied with the plow. In general, this information relative to sharpening and shaping of these shares will apply to other styles of shares.

Measurements (16" Share)

Lay both shares on a blacksmith's leveling table

and make note of the following measurements. (Refer to Fig. 7 below). The height of the "gunnel" (the *vertical* piece welded on the share) should be 3" above the table surface and the wing height should be 2", both measurements being taken on the highest edge of the "share-moldboard" line. These are measurements of correctly finished shares and both right and left hand shares should be the same.

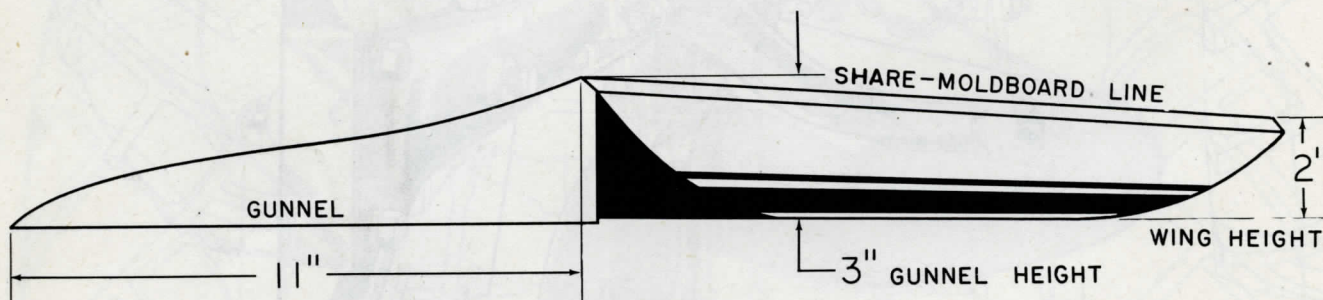


FIG 7.

POINTS

Draw out the points and throats as required making a gradual and smooth concave curve from the point tip backward *above* the gunnel but leave enough material at the point for strength. For the present the bottom of the gunnel should lay flat on the table and point suction can be put in later. If extension points are welded on they should not

be too wide on the point or have a gunnel length of more than 12". Normally the gunnel is about 11". A flat or thinner point is advisable for plowing alfalfa while rocky soils require more of a blunt point. Strength may be increased by welding a piece of plow steel on the under side of the point.

WINGS

Draw out the wing portion of the share bringing the "wing-height" to the required 2" above the

table. **CAUTION:** Keep the share-moldboard line straight and avoid warping. See Fig. 1.

CUTTING EDGE

Place share on the table and flatten the cutting edge of the share so that it touches the table throughout its entire length—from point tip to

wing tip. This should be as straight as a razor's edge.

SHAPING AND SMOOTHING

During the above operations the upper surface of the share must be brought to a smooth surface, gradually curving upwardly, and with no humps or hollows that will restrict the flow of soil to the moldboard. As shown in Fig. 8, and the included four cross-section sketches, the top surface should

be concave: (1), from the point tip rearward above the gunnel to the share-moldboard line (PT to SM), (2), from the throat to the gunnel edge (T to G), (3), from the throat to the share-moldboard line (T to SM), and (4) from the wing cutting edge to the upper share-moldboard line. (W to SM).

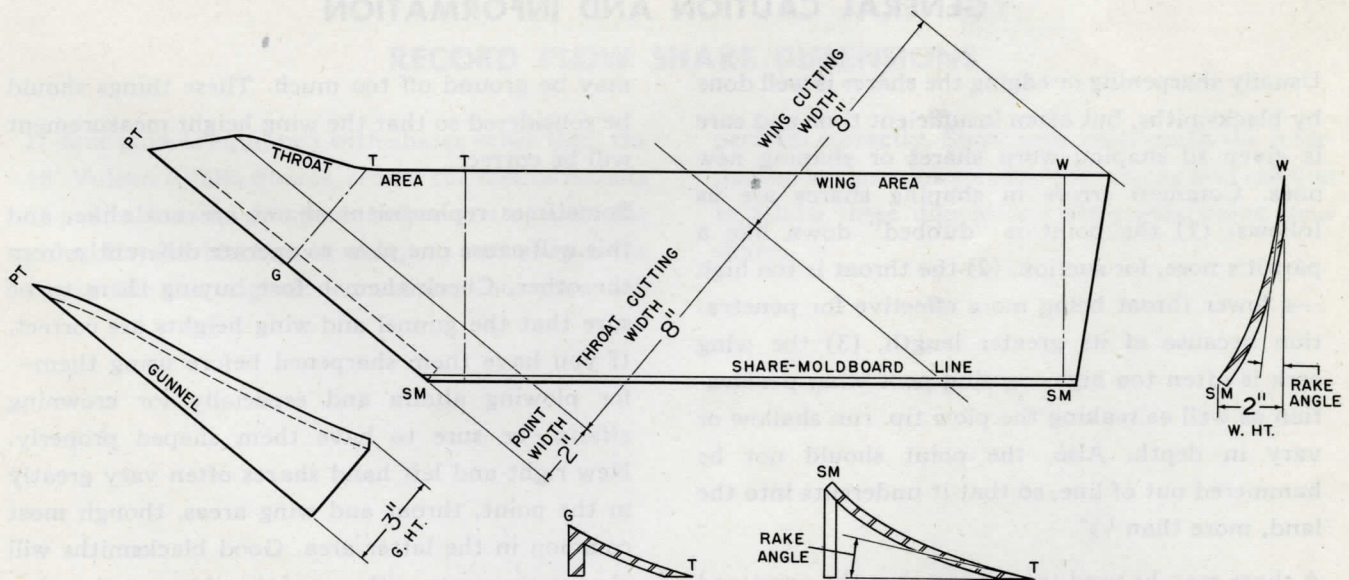


FIG. 8

POINT SET OR SUCTION

Check the gunnel and wing heights to make certain they are correct, and that both shares are alike.

"Point set or suction" can be put in now by heating the point and pounding it down over the edge of the anvil. The amount of "point set or suction" varies with the soil conditions. $\frac{1}{8}$ " should be sufficient to provide penetration and clearance for wear.

In easy working soils it may not be necessary to lower the point to secure penetration. When the share is bolted to the base the point is slightly tipped down, enough for clearance under the share point—the share moldboard line being raised. Too much suction or point set will wear faster, pull harder, and may cause gouging.

TEMPERING

To secure longer wearing, it is recommended that the shares be tempered. A competent blacksmith

should be able to do this. They should be tempered the same as any other similar share.

SHAPING OF PLOW SHARES

Sharpening or "edging" plow shares is one job, and *shaping* them is another. Your blacksmith who charges a fixed price for sharpening shares only will have to spend additional time shaping the share, and may charge more for shaping the share than

the sharpening charge. Shares should be shaped. They will do better plowing, have lighter draft, and use less fuel. Have your blacksmith shape your shares to the dimensions as shown on Illustrations 7 and 8.

GENERAL CAUTION AND INFORMATION

Usually sharpening or edging the shares is well done by blacksmiths, but often insufficient time and care is given to shaping worn shares or shaping new ones. Common errors in shaping shares are as follows: (1) the point is "dubbed" down like a parrot's nose, for suction, (2) the throat is too high—a lower throat being more effective for penetration because of its greater length, (3) the wing area is often too high, causing poor wing penetration as well as making the plow tip, run shallow or vary in depth. Also, the point should not be hammered out of line, so that it undercuts into the land, more than $\frac{1}{8}$ ".

A share may be used too long so that the point and under side of the gunnel is so low that the gunnel height measurement cannot be relied upon. Gunnel on new shares may be too high or too low, sometimes they are rough and unfinished or they

may be ground off too much. These things should be considered so that the wing height measurement will be correct.

Sometimes replacement shares are not alike, and this will cause one plow to operate differently from the other. Check them before buying them to be sure that the gunnel and wing heights are correct. If you have them sharpened before using them—for plowing alfalfa and especially for crowning alfalfa—be sure to have them shaped properly. New right and left hand shares often vary greatly in the point, throat and wing areas, though most common in the latter area. Good blacksmiths will always cooperate with you if they know and understand what you want. Each year plow owners and dealers lose much time and money in trying to adjust plows when the fault is only in the shares. This is the first place to look for plow trouble.

Be sure the top surfaces of the shares are concave, as in Illustration 2. This is necessary and may take double the time and care required for sharpening only.

When smoothing out the top surface properly, it is well to check the clearance on the under side of the share. This gradually increasing angle—sometimes called the “rake angle” is greater in the throat than it is in the wing area. Too steep an angle in the throat will cause the under side of the edge to wear too fast which will require a strip of plow steel to be welded in so as to decrease the

angle or flatten the throat. If the angle is too flat in the wing area there will be too much “wing bearing,” as evidenced by the under side of the wing being polished excessively by the furrow bottom. This surface should not polish more than 1" back from the cutting edge, as this might affect penetration and stability.

Shares that have been sharpened several times may have been warped and not being alike they may not have the original shape or the correct measurements. Hence it is important for the blacksmith to check them before starting to work on them.

SHARPENING SHARES FOR HEAVY OR DRY SOIL CONDITIONS

Particularly in heavier soils, trouble may be encountered if the soil varies several times in the furrow length. Such conditions may require more penetration. The best way to obtain this is to add it throughout the entire cutting edge by lowering it from point tip to wing tip. This is done by pounding the point down slightly—about $\frac{1}{8}$ "—and then bringing the throat and wing edges down the same. This increases the “rake Angle” *all along* the

cutting edge and does not upset the stability of the base. It is difficult to suggest table measurements for gunnel and wing heights, because lowering the point rocks the share around the fixed gunnel height and may even lower the wing height. The main point is to increase the “rake angle” of the cutting edge. This may require some field testing, but it is rarely ever necessary to lower the point and cutting edge as much as $\frac{1}{4}$ ".

RECORD PLOW SHARE DIMENSIONS

If your plow is equipped with shares other than the 16" Vulcan Alfalfa Shares, record the measurements of your shares in this book before you operate the plow. If your blacksmith sharpens and shapes the shares like the original new shares, your plow will

perform correctly. Show your blacksmith the information in this book on plow sharpening and ask him to follow these dimensions when sharpening your shares.

See Your Dealer for Information on the

FORD-FERGUSON TRACTOR



THE FERGUSON LINE

Of Implements Includes

Single-Bottom Plows	Row-Crop Cultivators
Double-Bottom Plows	Spring-Tine Cultivators
Disc Plows	Four-Row Weeder
Disc Terracers	Farm Mowers
Blade Terracers	Heavy Duty Mowers
Middlebusters	Wood Bros. Corn Pickers
Lister Planters	Transport Boxes
Tillers	Sweep Rakes
Single Disc Harrows	Feed Grinders
Tandem Disc Harrows	Two-Way Plows
Spring Tooth Harrows	Cordwood Saws

$\frac{3}{4}$ Ton 2 Wheel Wagon

