

DISC PLOW OPERATOR'S MANUAL

ADJUSTMENT, OPERATION & MAINTENANCE



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1. Introduction

A disc plow consists of a series of individually mounted, inclined disc blades on a frame supported by a furrow wheel. A tractor-mounted plow has a rear furrow wheel only. Disc plows are most suitable for conditions under which moldboard plows do not work sufficiently, such as in hard, dry soils, in sticky soils where a moldboard plow will not scour, and in loose, push-type soils such as peatlands.



Fig. 1: View of a Disc Plow

The disc plow is equipped with a heavy-duty tubular frame specifically designed for deep plowing and land preparation of rough soil.

2. Adjustments

In order to get the best results from the disc plow under field conditions, the following adjustments are necessary (Fig. 2):

- a. Cutting Angle Adjustment – Discs will not cut if they are rolled straight ahead. They must be set at an angle. Provision is made in the plow standard for the adjustment of the horizontal disc angle and vertical tilt angle to obtain optimum disc operation in different soil conditions.
 1. Disc Angle is the angle which the plane of the cutting edge makes with the line of travel. It is normally 42° - 45° . Reducing this angle increases the disc rotation with respect to ground speed and reduces the tendency of the plow to over cut. Increasing the disc angle improves the disc penetration.
 2. Tilt Angle is the angle which the plane of the cutting edge makes with the vertical line. It ranges from 15° - 25° . Increasing the tilt angle improves disc penetration in heavy, sticky soils. Decreasing the tilt angle improves disc penetration in loose and brittle soils.

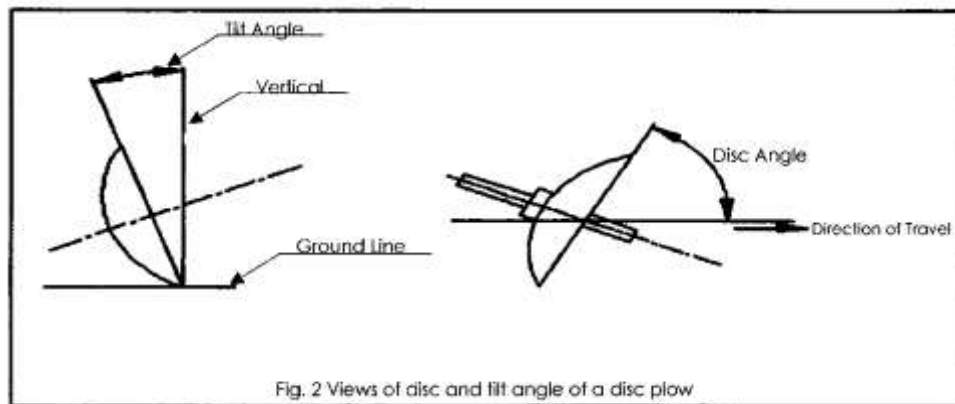


Fig. 2 Views of disc and tilt angle of a disc plow

- b. Width of cut adjustment – The disc plow has a particular width of cut, ranging from 18-25 cm depending on the diameter of the blade. However, to suit various draft and penetration requirements, the width of the cut for the front disc can be adjusted with the help of the cross-shaft. The cross-shaft has an index line which can be lined up with different (1, 2, 3) markings on the cross-shaft carrier.
- c. Leveling the plow – The level of the plow is controlled by the tractor top-link. If the rear-end of the plow beam is higher than the front-end of the beam, lengthen the top-link. If the rear-end of the plow beam is lower than the front-end, shorten the top-link. Lateral leveling is controlled by adjusting the length of the tractor right lower-link. These adjustments must be made to the plow prior to operation.
- d. Tightening the bearing – Bearings must be kept tight. Tighten the castle nut until the disc binds the hub.

- e. Scraper adjustments – Scrapers are set low enough to catch and turn the furrow slice before it falls away from the disc. For deeper plowing, the scraper has to be set a little higher. For sticky soils, set them closer to the disc.
- f. Draft of the disc plow

The type of the soil & moisture content are the greatest external factors to consider the draft of any plow. In very hard ground, it is often necessary to add weight to the wheels frame to force the plow into the soil.

The condition of the bearing housing will also affect the draft. Keep bearing in smooth conditions i.e. apply grease whenever necessary.

Draft is also affected by the depth and width of cut per bottom for complete plow. Speed is also another factor which increases the draft, doubling the speed increases the draft by about 20%-25%.

- g. Adjustments for deeper plowing

The depth of the plow can be obtained by the position and draft control levers of the tractor hydraulic system. However, more depth can be obtained by:

1. Adding extra weight to the plow.
2. Reducing tilt angle. A correctly tilted disc plow tends to penetrate better.
3. If the ground is covered with debris, set the disc in almost vertical position and add weight to the plow. In such soils notched discs give better results.

- 3. Warnings for the Operator:

1. Before plowing, check all nuts and bolts on the disc plow.
2. Don't plow in rocky soil.
3. Tractor should be in high first gear.
4. If the soil is hard, plow the field at least twice.
5. Make sure the shock spring is tight.
6. Lift the disc plow on every turn.
7. Be aware of tree roots and rocks.
8. Keep proper distance from disc plow when in operation.
9. Lift the plow before approaching roads.

4. Safety Considerations

1. In order to protect the operator, always wear adequate clothing and shoes during operations.
2. Never allow riders on the tractor or implement.
3. Be careful when moving around steep grades to avoid rollovers.
4. Never transport the implement on rough roads during the night.
5. When operating, avoid making sharp turns that may make contact with the implement.
6. Do not stand between the disc plow and the tractor.
7. Properly fit the three-point linkage as mentioned above and lock with lynch pin.
8. In case of scraper touching the discs, loosen the scraper bolts and re-adjust the scraper.
9. Never turn the tractor to the right or left when the plow is engaged in the soil.
10. Never operate the tractor in reverse when the plow is engaged in the soil.

5. Maintenance

a. Maintenance Instructions

If the disc plow is operated on rocky soil, maintenance will increase. Please follow these rules to get the best results:

1. If the disc plow is new, after the first 2 hours of use, tighten all nuts and bolts.
2. Check the plow adjustments if the steering is hard.
3. Check the scraper adjustments frequently.
4. If the soil is present in grease nipple, change the grease nipple.
5. After every 50 hours of use, grease all greasing points with grease gun and tighten all loose nuts and bolts.
6. After 300 hours of operation, open the hub of the disc plow, cleanse it with diesel oil, pump in new grease and replace the seal.
7. Constantly check for loose nuts and bolts.
8. Sharpen the disc blades if they are dull. Blunt blades increase the draft considerably.
9. When the diameter of the disc is reduced to 24", it is desirable to change the degree of the hub by loosening the mounting bolts.
10. Discs cannot work beyond 22" diameter. They must be replaced for effective plowing.
11. Keep the bearings lubricated as per the instructions given in the manual.
12. Coat the disc blades for rust prevention with the used oil in off-season.

b. Storage

1. Wash the disc plow after use.
2. Replace worn out nuts and bolts
3. If the disc plow remains unused for a long period of time, clean it and apply a layer of used oil for rust prevention.
4. These steps will enhance the life of your disc plow.

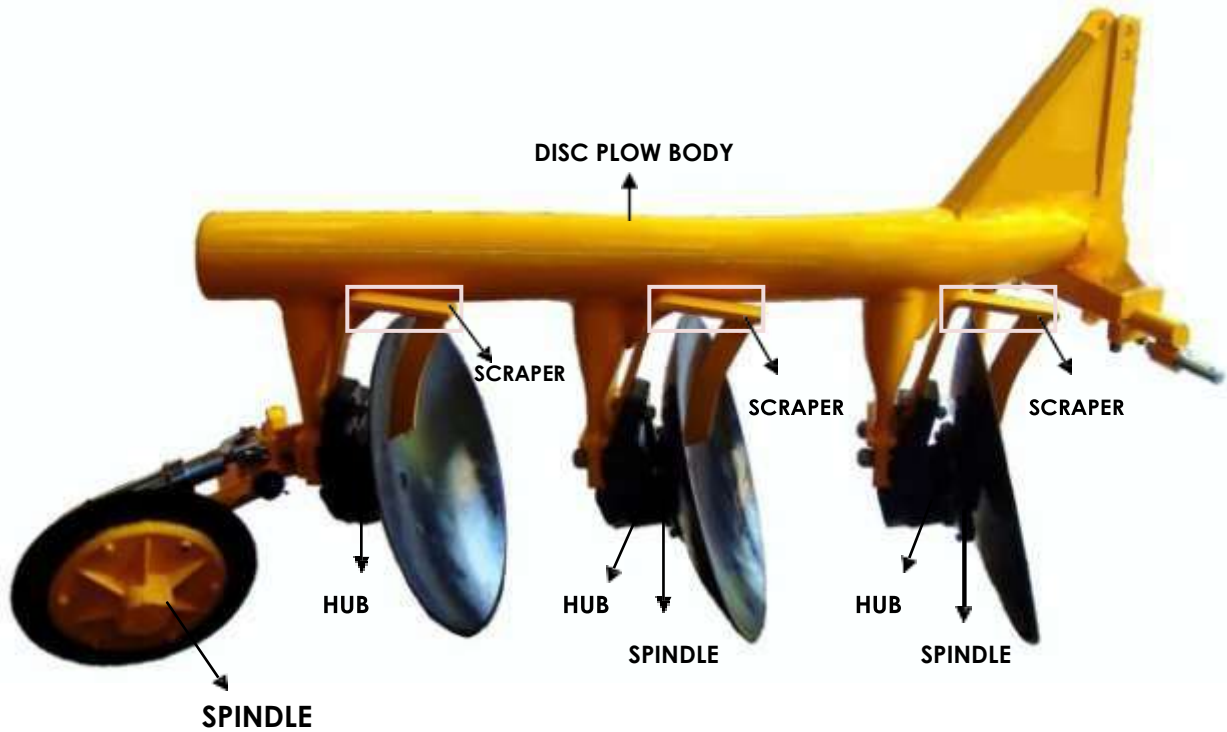
c. Lubrication

Please be sure that high quality grease is used in bearing housings, coulter hub & bushings.

PARTS BREAKDOWN



Description	2 Pan Disc Plow	3 Pan Disc Plow
	Qty. Pieces	Qty. Pieces
Main Body	1	1
Hub Complete With Spindle, Bearing, Scraper & Bolt	2	3
Stand	1	1
Shock assembly with Spindle, Shaft, Bearing w/ Bolt	1	1
Rear Blade (Flat) 20" x 5 MM	1	1
26" x 6 MM	2	3



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