100/120

Dowdeswell

GETTING THE BEST FROM

A little time spent setting up the tractor and plough before going to work for the first time, and start of a new season, will help improve performance, fuel economy and final finish.
The following guidelines have been prepared specifically for Dowdeswell 100 MA (Manual furrow width adjustment) and 100 HA (hydraulic furrow width adjustment) ploughs and Dowdeswell 120 MA (manual adjustment) ploughs.

The sequence of operations has been divided into four principal areas; setting up the tractor, attaching the plough to the tractor, plough settings in the yard and plough settings in the field.
All of the advice given assumes that the plough is in good condition that wearing parts are evenly worn and that nuts and bolts are tight.

We wish you successful ploughing.

SETTING UP THE TRACTOR

Front Weights

The tractor should be suitably ballasted for the size of plough, this will promote safety in transport and during turnover and ensure optimum balance and correct operation of the tractor's draft control system.

Tyre Pressures

Tyre pressures across an axle should be equal. A difference of only 5psi can affect ploughing depth by 2in. Adjust tyre pressures in accordance with the tractor or tyre manufacturer recommendations.

Inside Tyre Measurements

The distance between the tyre's inner walls should ideally be the same across the tractor's front and rear axle (Fig 1). It is allowable for the measurement at the front to be up to 2in (50mm) greater than that at the rear. The recommended tyre inner wall to wall measurement is from 50in to 56in (127cm to 142cm) depending on the ploughs furrow widths. (Please see Operator's Manual for further information).

Lower Lift Arms

Both lift arms should be the same height from the ground. Check for correct height by measuring the length of the drop arms between the same points on each arm.
Useful Tips; Where a choice is offered, attach both drop arms to the lower lift arms using the holes nearest the plough. The results will be improved lift capacity and better sensing of draft forces.

CONNECTING TO THE TRACTOR

Lower Lift Arm Connection

Two lower lift arm connection points are provided on the plough to provide adequate clearance for turnover on different tractors and when using a range of wheel and tyres sizes.

Under most circumstances, the tractor's lift arms should be connected to the lowest attachment holes on the plough (Fig 2). When ploughing deep, it may be necessary to use the upper holes to achieve the required depth.

Top Link Connection

There is a choice of top link connection points on the plough to suit the tractor and the required lift height. The higher the top link is positioned in the headstock, the higher the rear of the plough will lift.
Beware of the tractor's rear window during plough lift and turnover.

Hitching Up

Use the tractor's position control lever for precise control of the lift arms. To facilitate connection of ball-type connections, start by attaching the lower link onto the "body" side of the plough, which will normally be lying lower than the opposite side. Next, connect the top link and then raise the linkage slightly which will draw the other lower link into line. Finally attach the hydraulic pipes, ensuring they cannot become trapped during lifting or turnover.

DESIGNED AND BUILT IN BRITAIN

External Oil Flow

The majority of tractors have flow control valves for their external hydraulic connections. Set the appropriate valve to maximum for powerful, positive turnover and to minimum for precise movement of the front furrow width adjuster. On 100 HA ploughs, the same spool is used for adjustment of front furrow width and for setting the ploughing width of all furrows. Set to minimum oil flow.

And Finally …

With the plough fully connected to the tractor, raise the linkage arms slowly, checking clearances. To ensure the contact with the tractor is avoided, set the travel stops on the rear hydraulic controls to limit maximum plough lift.

PLOUGH SETTINGS IN THE YARD

Furrow Width

Adjust the furrow widths to the required setting on 100 MA and 120 MA ploughs. Widths available are between 12 in and 20 in, depending on the model, in lin steps. These are set by slackening the single bolt securing the serrated washer on each body, then moving the washer to the required width setting (Fig 3).

The centre of the arrow showing the widths must be in line with the centre of the bolt. Turning the washer through 180deg alters the setting between odd and even widths. Each leg and body can then be pivoted to the required position and the bolts retightened. 100 HA models are adjusted hydraulically in work.

Disc Settings

There are two disc settings; Working depth and cutting width. To set the cutting width, measure from the leg to the edge of the disc swivel (Fig 4).The distance should be (25mm) wider than the furrow width setting.

Adjust using bolt in slot securing disc bracket. To minimise wear and trash build-up, disc depth should set so that the distance from the centre of the disc hub to the share point is at least 3in (75mm) more than maximum ploughing depth (fig 5).

Adjust using multi-hole fixings in disc arm (fig 6).

Skim Settings

Initially, the crank of the skim arm should point directly forward so that working pressure is distributed evenly on the stalk.

Further adjustment may need to be carried out in the field according to trash levels. The vertical distance between the point of the skim and the share should be 2in (50mm) less than ploughing depth, with the skims point set 0.75in (19mm) outside the share (Fig 7). Ensure that the retaining 'U' bolts are fully tightened.

On 100 MA and 120 MA models, the rear disc should be set parallel, approximately 3/8in (9.5mm) wider than the landslide. The skim should be adjusted close to the disc, almost, but not quite touching.

On 100 HA models, the rear disc is mounted on the leg bracket to provide a 'once – only'' setting.

The distances are the same as MA ploughs, but the adjustment method is different. To adjust the disc width, slacken the two set screws holding the disc bracket to the leg (Fig 8) and turn the jacking screw to move the disc in or out to the required position. Retighten the set screws.

Underbeam Clearance

The point to beam distance will vary according to plough model. But should be the same on each body and ideally checked with new points. Having established the correct measurement for your plough (see Operator's Manual, plough brochure or price list), distances can be measured individually or by running a length of string between the front and rear most points and checking visually

whether all points are in line. A screw adjuster is provided on the rear of the frog on all bodies.

Plough Body Alignment

Make a mark on the top of all mouldboards a measured distance from a fixed, non-wearing point on each body assembly. Then, on an intermediate body, measure from this mark to the centre of the shearbolt on the leg behind (Fig 9).

Check this distance on the opposite handed body. The measurements should be the same. Now, measure from the marks made on the centre bodies to the marks made on the remaining bodies. These should be the same as the interbody clearances specified for your plough.
Adjustment is made by lengthening or shortening the mouldboard stay.

Depth Wheel

This has a hydraulic damper to prevent shock loads during turnover. With the plough just clear of the ground, unscrew the oil level plug in the damper (Fig 10) and check that the damper is full of oil. Top –up with SAE 90 oil.

Vertical Setting Bolts

These help level the plough laterally so that the left and right hand furrows work at the same depth. The bolts should be set equal length initially (Fig 11) and adjusted, if necessary, when the plough is in the field.

Before Leaving The Yard

Check over the plough and ensure that all nuts and bolts are tight and that the implement is greased according to the Operators Manual. Lubrication points often overlooked on 120 Series ploughs are the wheel yoke pin and the turnover shaft and arm (Fig 12).

The latter should be greased before and after turning over the plough. Examine hydraulic hoses, check tyre pressures and replace any badly worn or broken parts.

PLOUGH SETTINGS IN THE FIELD

When in the field, ensure that the check chains have sufficient slack to allow the plough to follow the tractor in work. Use the tractor's draught control system and set the rate of drop so that the plough is lowered steadily to the ground.

Plough Alignment

In work, the top link should be parallel to the centre line of the tractor.

100 MA; To correct any misalignment, rotate the beam turnbuckle adjuster (Fig 13) until the top link runs true.

120 MA; Both alignment and off set may need to be altered to suit ploughing width and tractor wheel settings. Set the front furrow width adjuster ram to its mid position, then turn the offset adjuster handle (Fig 14) until the top link runs true.
Finally, fine tune the front furrow width on the adjuster ram.

100 HA; To bring the plough into line behind the tractor, use the two adjuster screws on the turnover arm (fig 15).

Front Furrow Width Setting

Check visually that the front furrow width setting matches that of the remaining furrows (Fig 16).
Front furrow width adjustment is carried out hydraulically on 100 and 120 series ploughs.
On the 120 MA, there are three different positions for the ram linkage rod. The connection

point can be moved if you find that the ram has reached the end of its stroke before the front furrow width has been set correctly, the aim must be to get the ram piston close to its central position in work.

Plough Attitude, (side to side and front to rear)

In work, the plough's leg should run at 90 deg to the ground (fig 17).

Adjust lateral attitude on vertical setting bolts. Fore and aft adjustment is made on the top link and the depth wheel. It is important that the plough sits level in work. Sloping forward will result in inadequate furrow turnover. Sloping rearward will result in poor penetration.

Ploughing Depth

The maximum depth of ploughing should be set using the depth wheel. To adjust ploughing depth, lengthen or shorten the wheels threaded adjuster (Fig 18).

Shearbolts

Three different shearbolts are used on 100 and 120 Series ploughs. To prevent possible damage, always ensure that the correct shearbolt is fitted; 100MA – red shearbolt with two grooves;100HA- green shearbolt with one groove; 120MA- blue shearbolt with two grooves.

Transporting – 120 Series Ploughs

There is a correct sequence for moving the plough from its working position;

1) Move the wheel arm locking pin to its'locked' position (Fig 19).

2) Lift and turn over the plough so that the locking pin supports the wheel arm and holds the depth wheel off the ground.
3) Remove the long pin from the wheel yoke and insert opposite the wheel arm locking pin (Fig 20).
4)

5) Remove the swivel locking pin and rotate the depth wheel through 90deg, allowing it to act as a transport wheel.
6) Move one headstock location pin into the transport position (Fig 21) and index the plough to halfway, locking in position with second transport pin.

7) Lower the plough to the ground so that the wheel takes the weight (Fig 22).

After Work

Always check over the plough thoroughly, greasing as recommended and removing loose dirt and grime, particularly from the mouldboards and skims. Applying preservative to all bright parts (Fig 23) will help extend working life and ensure that the plough is ready to go to work again with minimal preparation.