



'PLOW-MATE'

6 H.P. LIGHT TRACTOR

INSTRUCTION MANUAL

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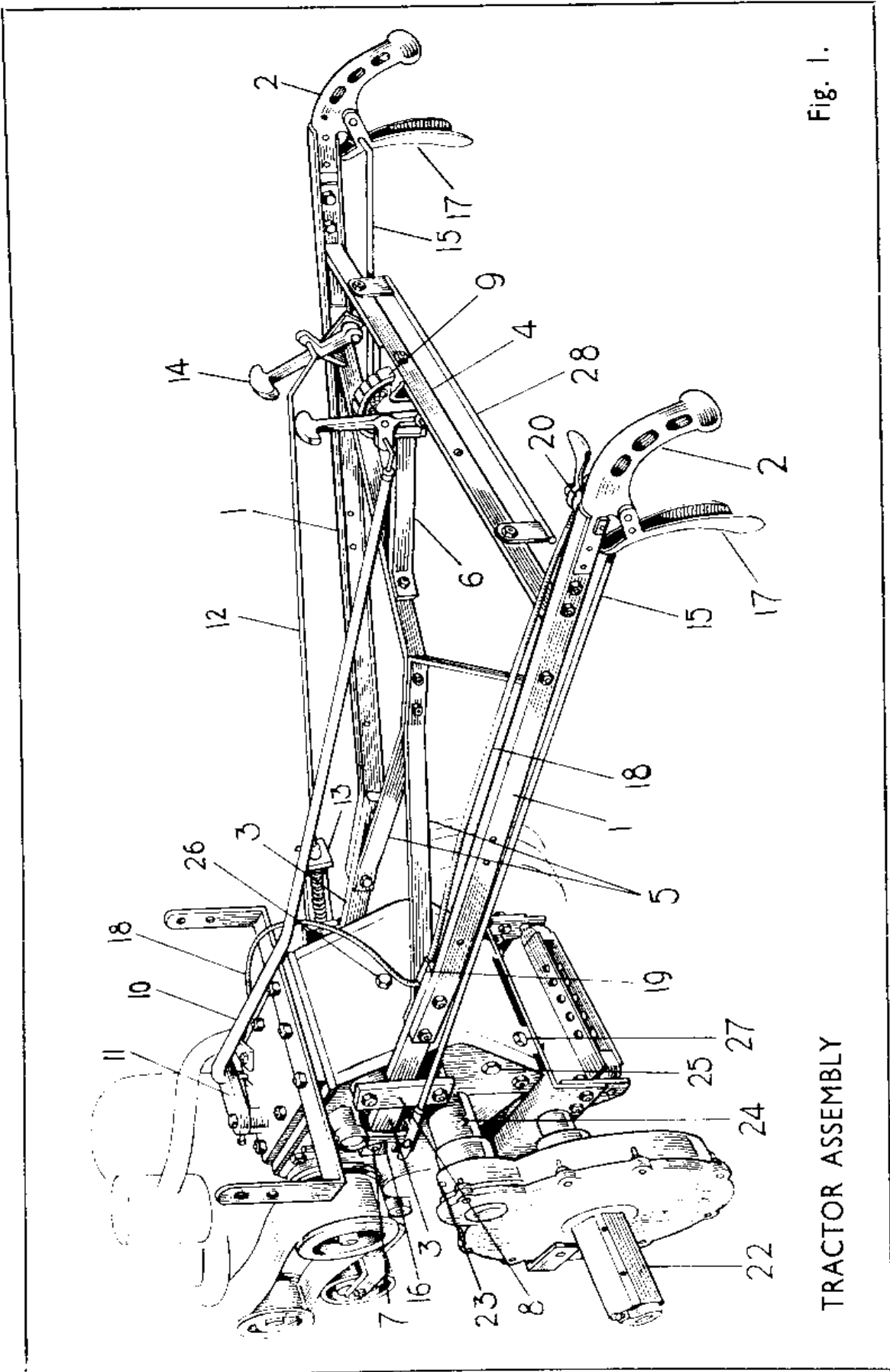


Fig. 1.

TRACTOR ASSEMBLY

ASSEMBLING THE TRACTOR

See Figs. 1 and 2.

THESE instructions, for customers who receive their tractor dismantled for shipment, are included for home users who wish to know more about their tractors. Handles, controls and wheels are detached for export. References are to Figs. 1 and 2, which show the tractor with cover and wheels removed.

The handles consist of two side members (1, 1) with hand grips (2, 2), two stub handles (3, 3), main cross member (4), diagonal brace (5), and gear quadrant strap (6). Bolt together, loosely, all except the last.

Bolt stub handles (3, 3) to gear housing at (7), and fasten them firmly with clamp (8) and set screws (Fig. 2). Tighten all bolts on handles.

Bolt gear quadrant (9) and strap (6) to main cross member (4), and attach gear rod (10) to gear lever on quadrant (9), and to gear box (11), with split pins.

Connect adjusting end of clutch rod (12) by removing first collar and spring and threading it through the hole in the L-piece (13, Fig. 2) at side of gear box. Thread through as far as second collar, and replace spring and first collar. Attach other end of clutch rod (12) to clutch lever (14) with split pin.

Fasten brake rods (15, 15) to brake levers (16) with cotters and split pins (Fig. 2). The other ends of brake rods are inserted into brake levers (17, 17) and fixed with split pins.

The throttle control cable (18) is wired to the engine for export. Remove tie wires and unwind. Fasten the cable to outer end of left stub handle (3) with spring clip (19), and with screw and nut to left hand grip (20).

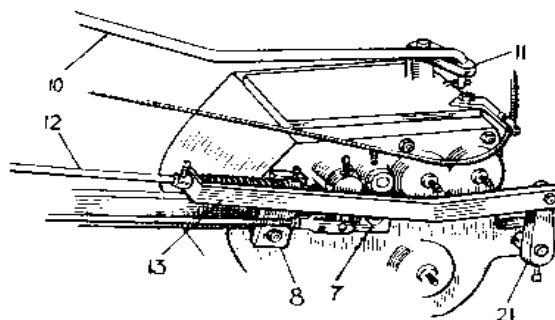
Attach wheels to tractor by means of clamps shown in Fig. 4. See wheel tread adjustments, page 6.

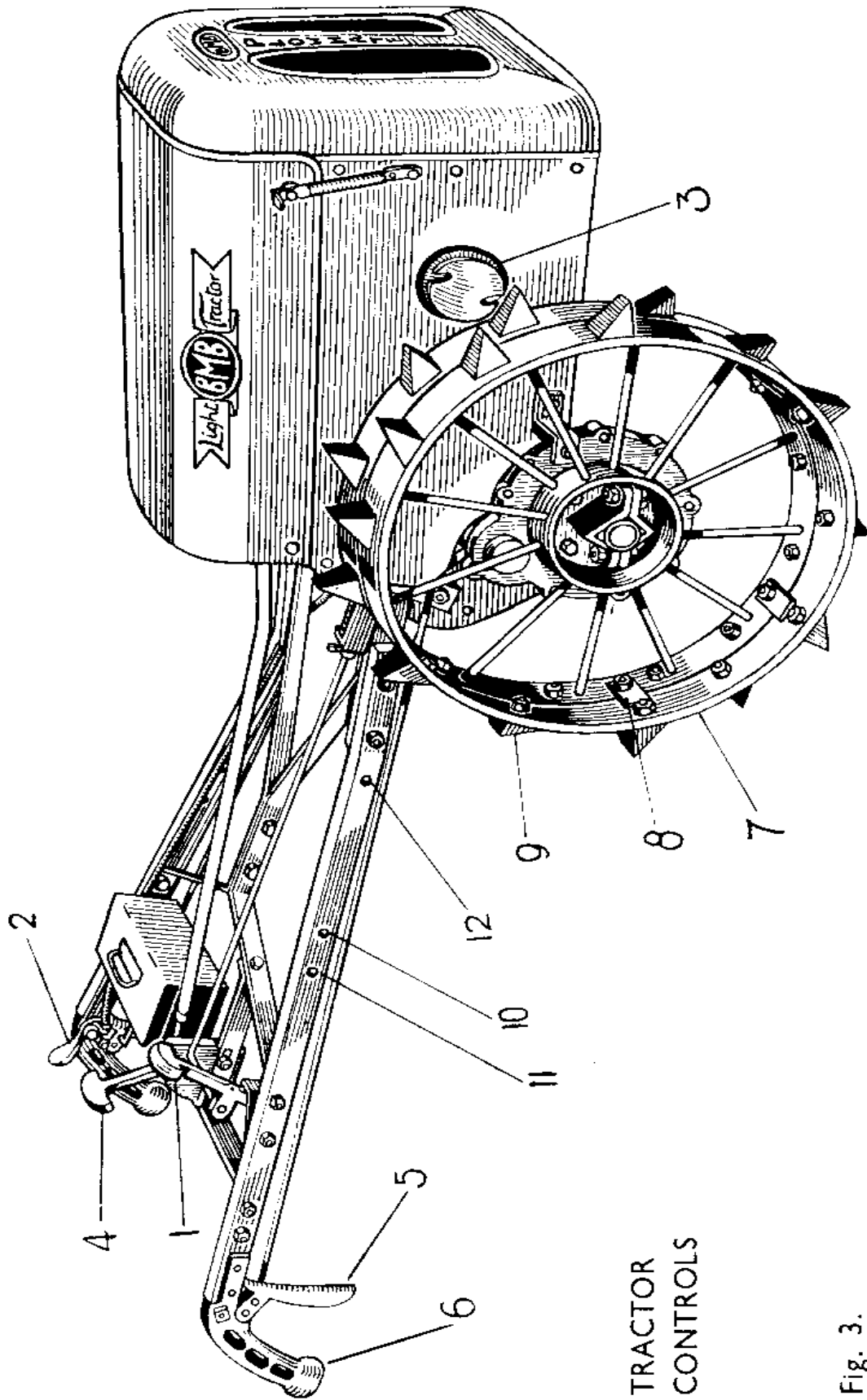
N.B. Petrol and oil are drained from the engine, and oil is drained from the gear box, of all tractors when they leave the factory. See that lubrication is properly carried out before attempting to start the tractor.

TRACTOR ASSEMBLY

Left-hand side
of gear box.

Fig. 2.





TRACTOR
CONTROLS

Fig. 3.

OPERATING THE TRACTOR

See Fig. 3.

USE this section with the separate engine book supplied with your tractor.

The controls are as follows: clutch lever (1) on the right facing forward, throttle lever (2) on the left hand grip, starter pulley (3) on the right side of the engine cover, gear lever (4) on quadrant to the left of clutch lever, and brake levers (5).

Make yourself thoroughly familiar with them before proceeding further. Clutch lever (1) is pulled back to engage the engine, and pushed forward to disengage. Throttle lever (2) is pushed down to open the throttle and pulled up to close it.

With clutch lever (1) forward—engine disengaged—and throttle lever (2) down—throttle open—start the engine with starter cord on the starter pulley (3), using the instructions given in the separate engine instruction book, making sure that the open and closed position of the choke are fully understood. See that the gear lever (4) is in a neutral position—marked "N" on the quadrant—before you start. Run the engine for a few minutes on the open throttle to warm up, and then slow it down by pulling up the throttle lever (2) to close the throttle.

The gear lever (4) provides two forward speeds and a reverse, with a neutral position between each. Under no circumstances should you attempt to change gear when the tractor is in motion. The clutch lever (1) must always be in the disengaged position—forward—before you move the gear lever.

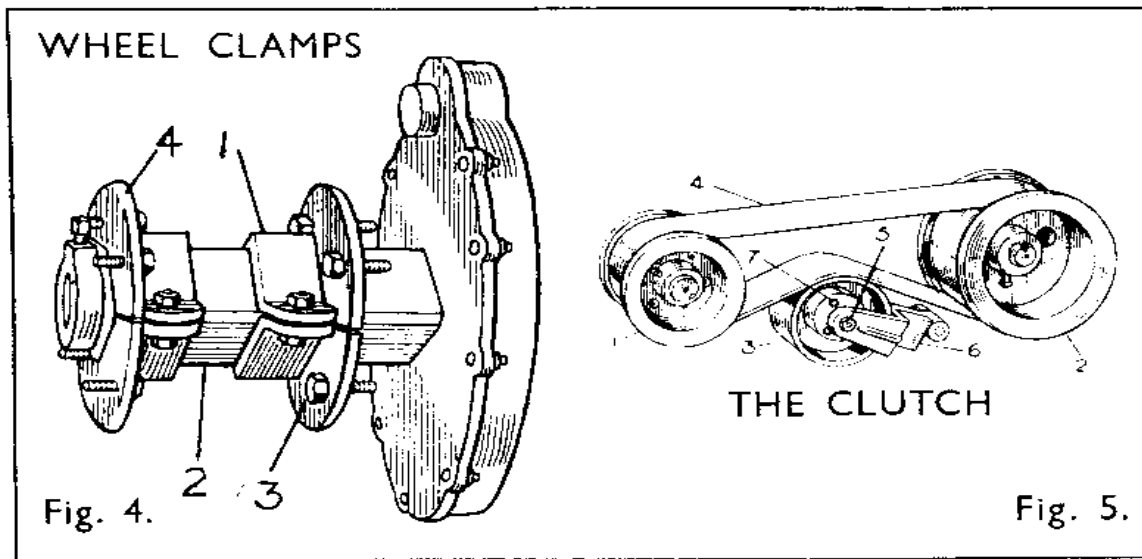
The forward speeds are Low—just under 2 m.p.h.—for ploughing, heavy cultivating, and inter-row cultivations where special care is necessary, and High—3 to 4 m.p.h.—for straight-forward operations such as discing, harrowing, seeding, sowing and hauling. These speeds are with the throttle fully open and can be varied by using the throttle lever. Ploughing can be done in high gear under favourable conditions.

To set the tractor moving, select the gear required by moving the gear lever (4) to the required position on the quadrant, then slowly pull back the clutch lever (1) until it rests on the cross member to engage the engine and, at the same time, open the throttle to pick up speed.

When in reverse gear, pull the clutch lever (1) slowly back, with the engine slowed down, and hold the tractor handles firmly down to prevent them lifting.

The tractor is easily steered by the hand grips (6) on straight work. The brake levers (5) should only be used for turning under power at the ends of rows or furrows. This is done by slowing down the engine and gripping the brake lever on the side to which you wish to turn.

To stop the tractor, push the clutch lever (1) forward to disengage the engine, close the throttle by pulling up the throttle lever (2), and put the gear lever (4) in neutral position.



ADJUSTMENTS

WHEEL TREAD—See Fig. 4

To vary the track centres of the wheels, jack up the tractor and loosen the two bolts in the wheel clamp (1) on the square wheel hub (2), and the four bolts on the wheel centre (3).

Slide the wheel along the hub to the required position. Tighten first the two bolts on the clamp equally at each side and then the four bolts in the wheel centre.

The clamps can be reversed (4) and put on the inside of the wheel centre for extra wide settings, taking care to tighten the bolts in the correct order.

CLUTCH—See Figs. 5 and 2.

The two forward speeds and reverse can be varied by interchanging the 4-in. pulley (1, Fig. 5) and the 5-in. gear box pulley (2). As the governor is adjusted at the factory, with the present gear ratio of 4 : 5, the tractor has a speed of just under 2 m.p.h. in low gear and 3-4 m.p.h. in high gear. Reversing the pulleys will therefore give speeds of up to 3 m.p.h. in bottom and up to 5 m.p.h. in high gear. Slower speeds can be obtained by throttling back the engine.

Should the pulley belt (4, Fig. 5) show a tendency to slip under heavy loads, tighten the belt by moving nearer to the handles the second collar next to the L-piece (13, Fig. 2), and then moving the spring and the first collar the same distance. Do not move the collars more than $\frac{1}{4}$ -in. at a time, testing to see if the adjustment is sufficient. An over-tightened belt will do more harm to your tractor than a loose belt. The belt should run centrally on the pulleys at all loads. If it rides up to or on the flanges, the engine and gear box pulleys need re-aligning.

SERVICING

See Figs. 1 and 2.

GREASE your tractor twice a day when working, using Wakefield's Gearease Heavy in the grease gun provided in the tool kit. Make this a habit to ensure the efficient working of your unit.

There are two grease points on the square wheel hub (22), and points on the reduction gear casing (23) and the reduction gear shaft (24), on each side of the tractor.

The idler pulley (3, Fig. 5) is packed with grease. It should be dismantled every 100 working hours by removing the bolt (5, Fig. 5) between the idler pulley and the fork (6, Fig. 5), and unscrewing the three countersunk screws (7, Fig. 5) on the cover to expose the ball races. Clean with paraffin, and re-pack when dry with the high-pressure grease used in the grease gun.

The oil level plug (25) on the main gear case should be inspected every 50 working hours. Fill to this level by means of the filler plug (26), and, after replacing the oil level plug, add an extra pint of oil to ensure efficient lubrication. Change the gear oil twice a year, draining off the old oil through the drain plug (27), and refilling with an extra pint above the level of the oil level plug. Use Castrol D Gear Oil.

Wash wire filter in Air Cleaner occasionally and maintain the oil in the well at the level indicated, using engine oil.

Oil the engine and service it in accordance with the separate engine instruction book, using Castrol XL in summer and Castrolite in winter.

NOTE. After the first day's work with a new tractor check over the machine thoroughly with a spanner and tighten all nuts and set screws. They should be checked in this way at regular intervals throughout the life of the tractor.

TRACTOR ACCESSORIES

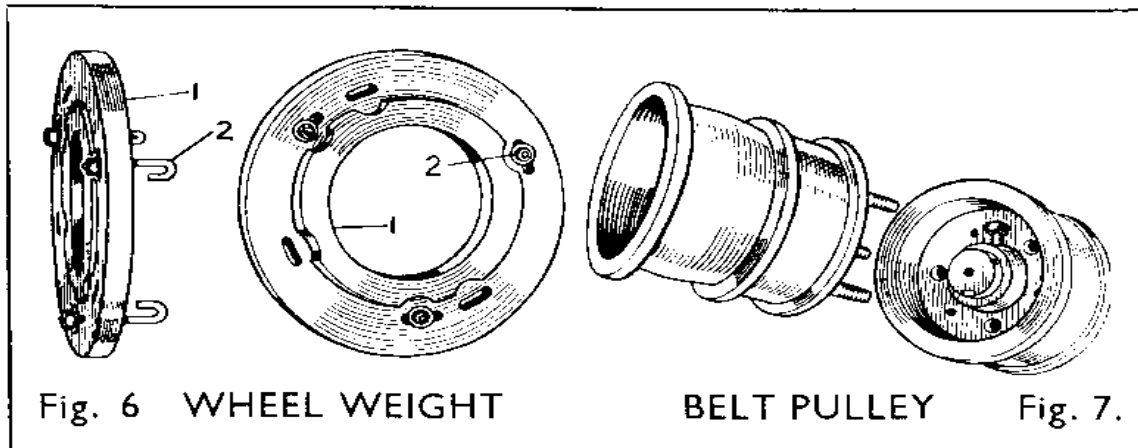
EXTENSION RIMS—See Fig. 3.

Extension rims should be used for heavy work. They are bolted to the wheel rims by means of the six straps (8) welded to the extension rims. Remove twelve spade lugs (9) from the wheel and stagger them on the extension rim.

Single wheels can be used with advantage for row-crop cultivation in narrow rows.

ROAD BANDS

These fit over the outside diameter of steel lug wheels—either single wheels or those fitted with extension rims—to protect the road surface from damage by the lugs. They are fastened in place by means of the angle lugs provided.



PNEUMATIC TYRES—See Fig. 4.

Pneumatic tyred wheels are interchangeable with steel lug wheels on the wheel clamps (1) on the square hub. The same attention should be paid to the order in which the bolts are tightened as is stressed in the instruction on wheel tread adjustment on page 6.

Tyre pressure should be checked at least once a week, whether the tractor is in use or standing, and kept to 12 lbs. per square inch. Care should be taken to keep oil off pneumatic tyres since it will rot the rubber.

If greater wheel adhesion is required for heavy work, such as ploughing, consult your dealer or garage on the question of liquid loading of pneumatic tyres.

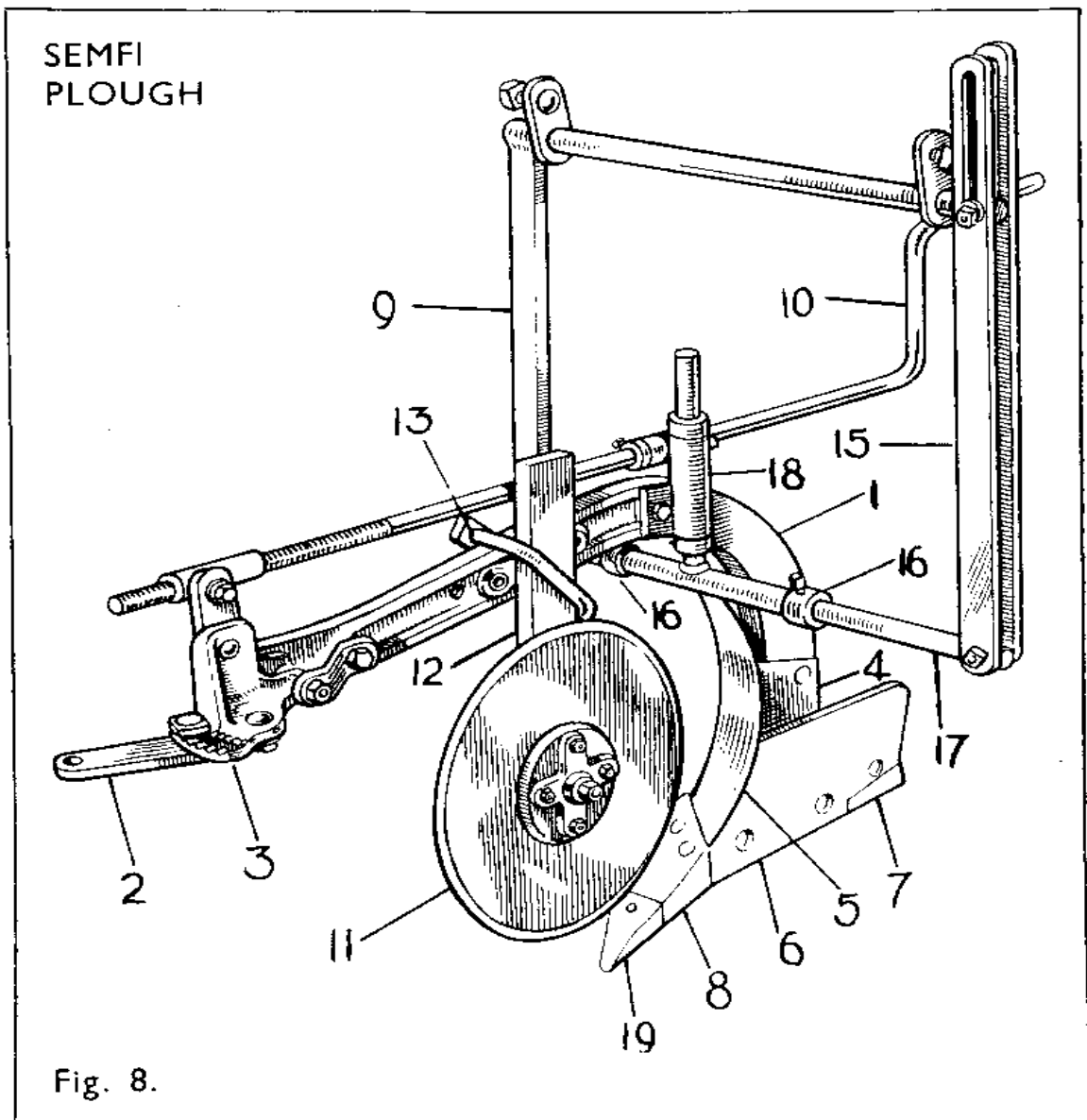
WHEEL WEIGHT —See Fig. 6.

A wheel weight (1) is provided to give greater wheel adhesion. It is fastened to the spokes of the left hand steel or pneumatic wheel by means of the three hook bolts (2) provided.

BELT PULLEY ATTACHMENT—See Figs. 5 and 7.

The belt pulley is bolted direct to the engine pulley (1) without removing the tractor cover, using the three 4½-in. by ⅜-in. Whitworth set screws provided with the attachment. It will be found invaluable for all belting jobs where 6 h.p. is adequate for the work in hand, such as driving a saw bench, milking machine, concrete mixer, grinding mill, pump, etc.

**GREASE YOUR "PLOW-MATE"
TWICE A DAY WHEN WORKING**



ASSEMBLING THE PLOW (Export)

See Figs. 8 and 9.

WHEN packed for export, the plough has the bottom (4), the bail frame (9), and the disc coultter (11) removed from the beam (1), and the depth regulating screw (10) detached from the bail frame bracket (18) and the clevis (3).

Bolt the bottom on to the beam by means of the two bolts, attach the disc coultter standard (12, Fig. 8; 14, Fig. 9) by means of the U-clamp (fixed coultter models) or the bracket (swivel coultter models), and attach the bail frame bracket (18) to the beam by means of the two bolts. Finally, bolt the depth regulating screw (10) to the bail frame bracket (18) and the clevis (3).

SETTING THE PLOUGH

See Figs. 8 (*semi-digger with fixed coulter*) and 9 (*general purpose with swivel coulter*).

THE plough consists of the beam (1), with draft link (2) and clevis (3) at the front. At the rear is the plough bottom (4) to which are attached the mouldboard (5), landside (6) with chilled heel (7) and share (8) (point and side in place of share on semi-digger bodies). The bail frame (9) with slot adjustment ensures that the plough bottom works perfectly level although the tractor is running at a slant. The depth regulating screw (10) determines the depth of the furrow. The disc coulter (11) cuts through the top growth and gives a clean furrow wall.

With the fixed coulter ploughs (SEMFI and GENFI, as Fig. 8) the disc coulter (11) should be set with its centre above the point of the share (8). Roll the coulter standard (12) on the beam (1) by loosening the bottom nut on the U-clamp (13) and tightening the top nut until the blade of the disc is approximately $\frac{5}{8}$ -in. to the outside of the landside (6). Then tighten the bottom nut.

With swivel coulter ploughs (SEMSC and GENSC, as Fig. 9) this adjustment is made by turning the cranked standard (14), and locking it with the square-headed set-screws.

This approximate measurement of $\frac{5}{8}$ -in. is varied according to soil conditions to leave a clean furrow wall. A closer setting, although it gives a slightly narrower furrow, may be desirable in firm ground. A wider setting will be found essential on loose soil in order to ensure that the furrow wall remains unbroken.

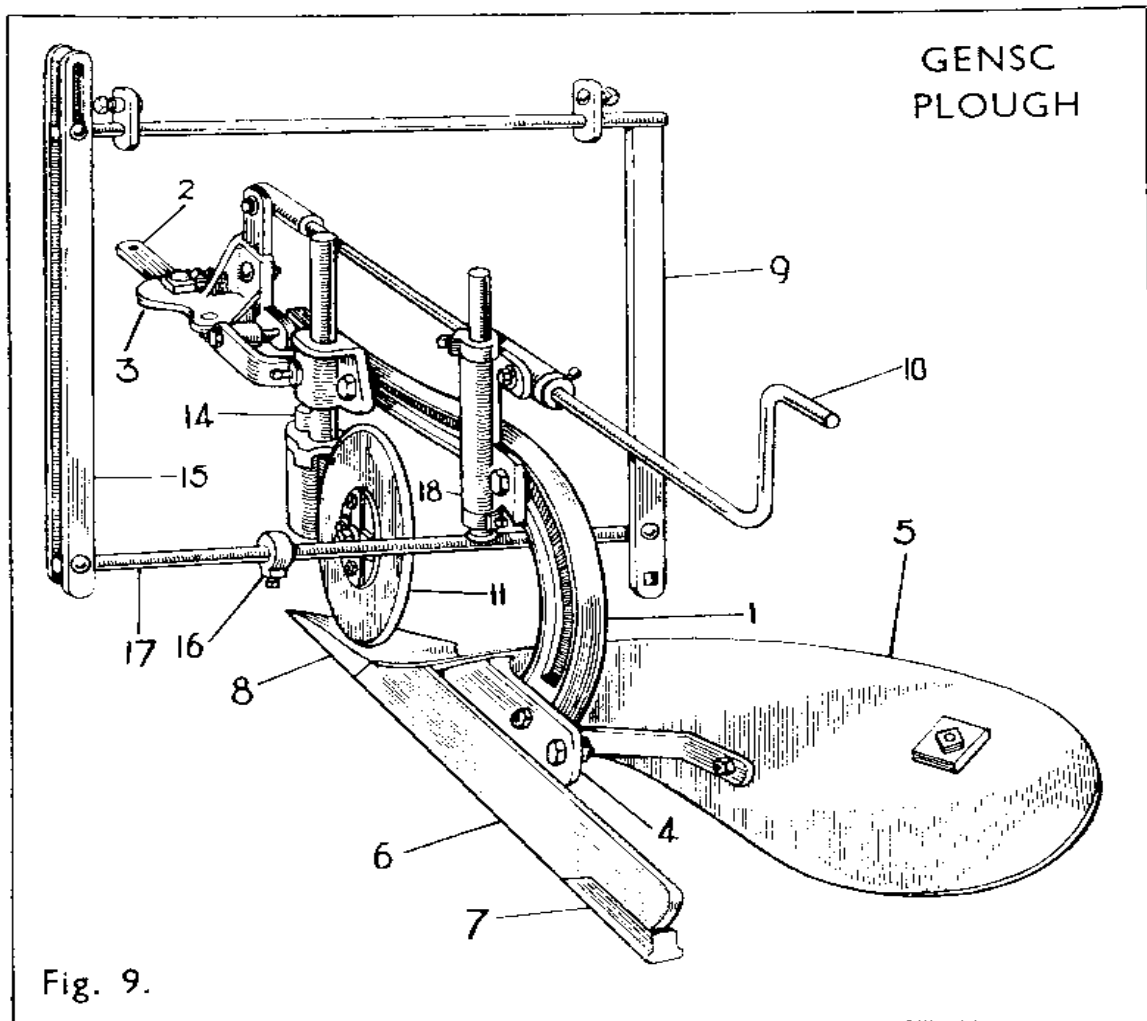
The bottom edge of the blade of the disc coulter (11) should be about $1\frac{1}{2}$ -ins. above the point of the share (8). This, again, is varied according to the depth of ploughing and soil conditions. A lower setting in hard ground will tend to prevent the plough from penetrating, and the disc should be raised until the result is satisfactory. A higher setting will not cut a clean wall in loose soils, and the disc should be lowered until the desired effect is obtained.

Neat and clean ploughing is very largely a question of experience once these initial points are mastered.

Hitch the plough to the tractor drawbar by using the drawbar pin in the centre hole, with the draft link (2) set straight in the clevis (3), and with the tractor wheels set close in to the body of the machine.

Bolt the bail frame clips on the top round bar of the bail frame frame to the inside channels of the tractor handles (at 10, Fig. 3) with the distance pieces on the bolts on the inside channels. An alternate fixing at the other pair of holes in the handles (11, Fig. 3) may be used in the event of variation in the widths of the handles.

The plough bottom should run level at all times, with the



beam vertical. This is achieved after the wheel is in the furrow by adjustment of the horizontal bars of the bail frame (9) in the slotted side member (15) and in the additional hole at the bottom of the right hand side member.

If you are doing heavy ploughing, you will require a greater draw bar pull than is supplied by single rim wheels. This is obtained by using extension rims (7, Fig. 3) and wheel weight (Fig. 6). Users of rubber tyred wheels should consult their dealer or garage on liquid loading of pneumatic tyres for the same purpose.

OPERATING THE PLOUGH

See Figs. 8 and 9.

SET stakes across the field to ensure straight furrows, wind the plough up with the depth regulating screw (10), and open a shallow furrow down your line of stakes.

Now work back down your shallow furrow with the furrow wheel (right wheel) of your tractor close to the first furrow, and turn this second furrow on to the opening furrow. On the

next bout, in the direction of your opening furrow, run the furrow wheel in the first furrow, wind the plough in a little deeper, and adjust the level of the plough to run with the beam vertical.

This adjustment is made by means of the slotted side members (15) of the bail frame to the left tractor handle.

For the next furrow, wind the plough down to the required working depth and adjust the level of the plough, which should always run back with the beam vertical.

With these opening furrows established, the tractor can be made to steer itself by moving the draft link (2) to the left of the centre hole in the tractor drawbar, and/or by loosening the two set collars (16) on the bottom round bar (17) of the bail frame (9) and moving the plough bodily to the left. Secure it in position again with the two set collars (16). This makes the furrow wheel of the tractor hug the wall of the furrow.

To plough in "lands," set rows of stakes 11 yards apart to mark opening furrows and plough 5½ yards on each side of these.

SERVICING THE PLOUGH

CHECK over the plough each day before commencing work and see that all bolts and set screws are tight. Make sure that the share or point is firmly held by the shear pin.

Grease the thread of the depth regulating screw, the disc coultter axle and the bottom round bar of the bail frame.

After use each day, clean all dirt away from the plough bottom and grease the mouldboard and landside to prevent rusting.

**IS YOUR 'PLOW-MATE'
FULLY EQUIPPED TO
COPE WITH ALL THE
CULTIVATION WORK
WHEN YOUR PLOUGHING
IS DONE?**

CONTACT YOUR LOCAL AGENT
FOR DETAILS OF THE FULL
RANGE OF B.M.B. IMPLEMENTS

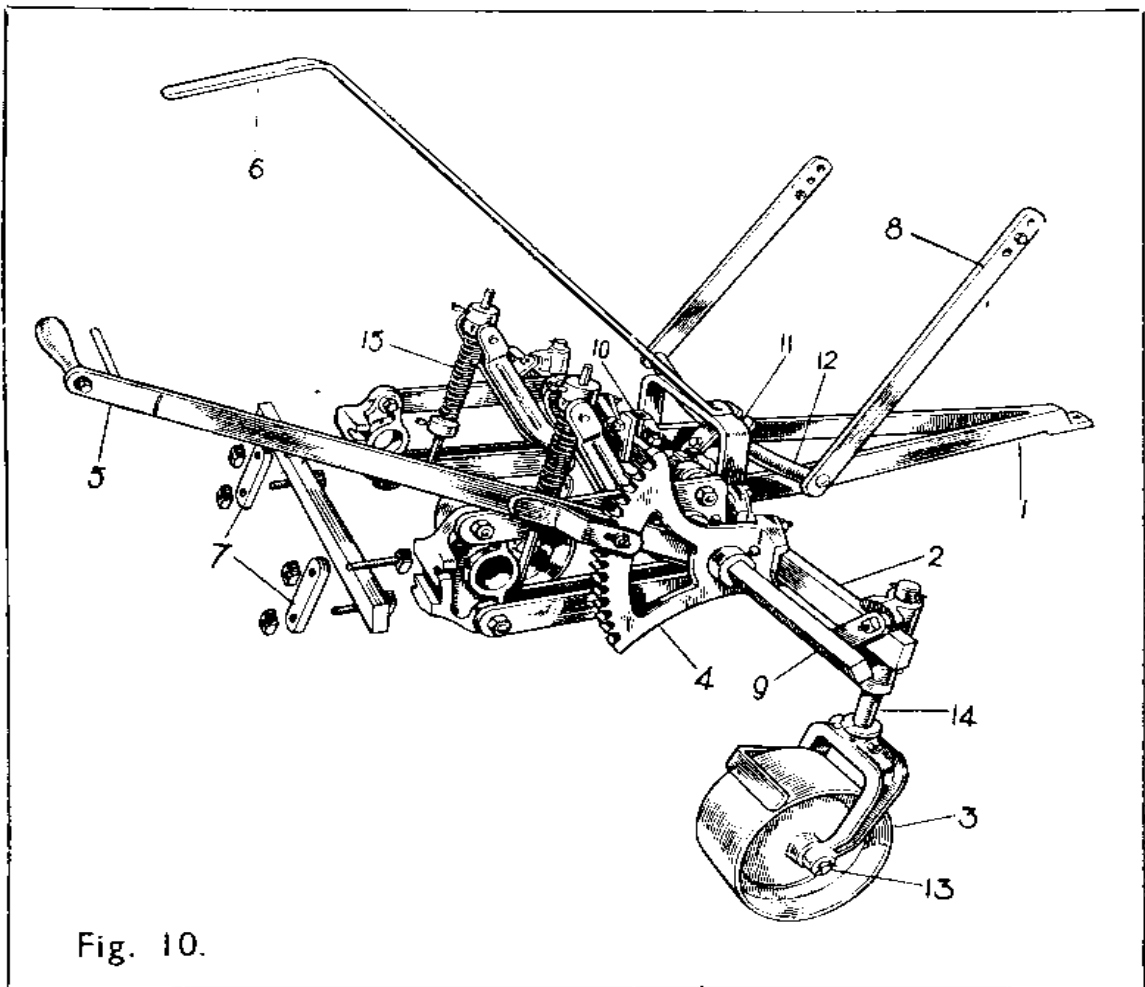


Fig. 10.

ASSEMBLING THE TOOL CARRIAGE

See Fig. 10.

THE tool carriage consists of a drawbar (1) to which is attached a main cross member (2) on castor wheels (3), lifting quadrant (4), depth regulating handle (5), control handle (6), tool clamps (7), torque prop (8), and retaining bar (28, Fig. 1).

For export purposes the drawbar, castor wheels, control lever and retaining bar are taken off. On home models the lifting quadrant (4) and depth regulating handle (5) are assembled in the centre of the square bar (9) ready for use. For export, this mechanism is taken off and reassembled as shown in Fig. 10. Assembly detail is given here for the benefit of home users who may have occasion to dismantle the tool carriage.

Clamp the drawbar (1) to the main cross member (2) of the parallel lifting mechanism, and the castor wheels (3) to the ends of this main cross member. Bolt the control handle (6) to the drawbar casting (10), using the distance pieces supplied, and with the washers and nuts on the outside. On export models, slide the depth regulating handle (5) and quadrant (4) on to the

square bar (9), close to the parallel lift bars, as shown in Fig. 10, before fixing the castor wheel on this side, and adjust set screws and clamp to hold it in position.

The lugs of the retaining bar (28, Fig. 1) for the control handle (6) are bolted to the main cross member of the tractor handles as shown in Fig. 1.

OPERATING THE TOOL CARRIAGE

See Fig. 10.

RAISE the tractor handles and hitch the tool carriage drawbar (1) to the tractor drawbar with the pin in the centre hole. Lower the handles, and bolt torque prop (8) to each side of the tractor handles, using the holes (12, Fig. 3), and with the torque prop uprights on the outside of the handles.

Loosen the retaining bar (28, Fig. 1) on the tractor handles, unbolt one end of it, slide the control handle (6) between the retaining bar and the tractor handle cross member, and bolt retaining bar back into position.

The parallel lift springs (15) are moved along the cross member to provide for the widths of the various implements used. The depth regulating handle (5), as its name implies, adjusts the depth to which the implements are worked, and the control handle (6) enables you to steer the tool carriage and implements independent of the tractor.

All the B.M.B. cultivation implements, with the exception of the ploughs and rolls, are attached to the tool carriage by means of the two tool clamps (7). It is important to adjust the clamps and the standards of the implements so that the implement in use can be lifted off the ground.

Put the tractor in bottom gear and go slowly and carefully until experience has been gained. Set the tractor running straight down the rows being cultivated, and you will find that it requires very little steering, leaving you free to steer the implements by means of the control handle (6) which steers the tool carriage quite independent of the tractor.

SERVICING THE TOOL CARRIAGE

See Fig. 10.

CCHECK over the tool carriage each day before starting work, and see that all nuts and set screws are tight.

Grease the torque roller (11), the torque prop bar (12), the castor wheel axles (13) and standards (14) to ensure smooth running. The depth regulating handle should be oiled occasionally where it works on the quadrant ratchet, and also the springs (15) of the parallel lifting mechanism.

ASSEMBLING CULTIVATION IMPLEMENTS (Export)

See Parts List Illustrations for individual implements.

DISC HARROWS

For export packing the disc blades are detached from their spindles and the tool bar is removed. To reassemble, run discs and distance pieces on to the axles, and bolt the tool bar clamps to the tool bar. Thoroughly grease the disc bearings after assembly, using the grease gun supplied with the tractor.

DOUBLE RIDGING OUTFIT

Packed for export, the tool bar is removed, the tool bar clamps are taken off, and the wings are closed. To reassemble, bolt clamps to standards and tool bar, and open out wings to the required widths.

SPIKE TOOTH HARROW

The top structure is collapsed and the teeth laid flat for export. Reassembly simply consists of raising the top structure, tightening all nuts and U-bolts holding it in place, and then turning down all the harrow teeth and tightening the U-bolts holding them in position.

SPRING TINE CULTIVATOR

The tool bars are removed and the spring tines taken off their standards for export. In reassembling, care must be taken to fix the tines on alternate sides of the standards as shown in the Parts List illustration.

WIDE HOEING CULTIVATOR

Packed for export, the hoe blades are removed from their standards and the tool bar is detached. Reassemble in pairs, each pair having one straight and one off-set standard.

OPERATING AND ADJUSTING CULTIVATION IMPLEMENTS

See Parts List Illustrations for individual implements.

DISC HARROWS

The pitch of the discs is adjusted by means of the single bolt and quadrant. As shown in the Parts List illustration, the adjustment provides for "out-throw" action. Reversing the gangs on the tool bar will provide "in-throw" action. Many owners prefer to remove the lift mechanism from the tool carriage and clamp the disc harrows direct to the rigid bar of the tool carriage.

DOUBLE RIDGING OUTFIT

For 28" ridges, set tractor wheels, without extension rims, close to tractor body, and adjust ridging bodies on tool bar to similar width. For ridges above 32" extension rims can be used. For ridging (opening up), close wings so as to cast flat-topped ridges. This enables tractor wheels to ride on the ridges more easily for planting (splitting back the ridges). Adjust standards up or down in shank clamps on tool bar for necessary depth of ridges, and to ensure that lift lever can raise bodies clear of the ground at end of row. Tool carriage castor wheels should be moved in to avoid ridging body points. It may be necessary on hilly land or heavy soils, to cast the ridges in two bouts to avoid wheel spin. In this case, only a shallow furrow should be taken at first, full depth being obtained on the second trip. Always have torque roller mechanism well greased for easy steering.

SPIKE TOOTH HARROW

The front of the harrow should be slightly higher than the back. This adjustment is made by means of the two-piece centre standard. The harrow teeth should slope backwards, the pitch being adjusted with the slotted bar and set screw.

STANDARD CULTIVATOR

The pitch of the points is variable. They swivel on the wooden pegs and the pitch is adjusted, by means of the bottom bolt with corrugated washers, at the point where the standard is clamped to the tool bar.

WIDE HOEING CULTIVATOR

Adjust the hoe blades for pitch at the bottom slotted holes where they are bolted to the standards.

SPRING TINE HARROWS

The tines should be staggered in order to prevent clogging.