

Fordson Dexta Tractor

Foreword

This Manual has been prepared for express purpose of assisting those concerned with the servicing and repair of the Fordson Dexta Tractor.

You will find that it is divided into 10 sections, each section being, as far as possible, self-contained, with pages numbered consecutively within the section. Each page also bears the date of issue so that when changes necessitate alterations in the contents the page can be removed and replaced by a new one containing the revised information.

No attempt has been made to elaborate on established engineering principles and design but for those who are meeting the Fordson Dexta for the first time the operation of new features and repair procedures have been fully explained.

Not even the most experienced mechanic can be expected to carry in his head all the details of fits, clearances and specifications applicable to this tractor, therefore such information has been included in each section of the Manual.

Methods of repair based on the experience of Service Department, Tractor Division, are covered in full detail and where necessary, particular operations are illustrated. "Exploded" and sectioned views of the main components have been included to assist correct assembly.

Particular attention has been given to the application of specialised tools and equipment which have been developed to ensure speedy and efficient overhaul of the tractor and a new tool numbering system has been introduced to clarify and make easy the selection of adaptors for the main tools.

Whenever reference is made in the Manual to right-hand or left-hand of the tractor this is as viewed from the driver's seat facing forward.

The tractor serial number is stamped on the left-hand side of the clutch housing/engine flange and is pre-fixed by the number, i.e. 957E.

The engine serial number is stamped on the left-hand side of the cylinder block adjacent to the water inlet elbow from the water pump.

The fuel injection pump serial number is stamped on the left-hand side (front) of the pump cambox.

Reference should be made of the tractor serial number on all correspondence relative to this tractor and, where necessary, engine and pump serial numbers should also be quoted.

Ford policy is one of continuous improvement, and the right to change prices, specifications and equipment at any time without notice is reserved.

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**Ford Motor Company Limited,
Service Department,
Tractor Division,
Dagenham,
England**

BRAKING SYSTEM

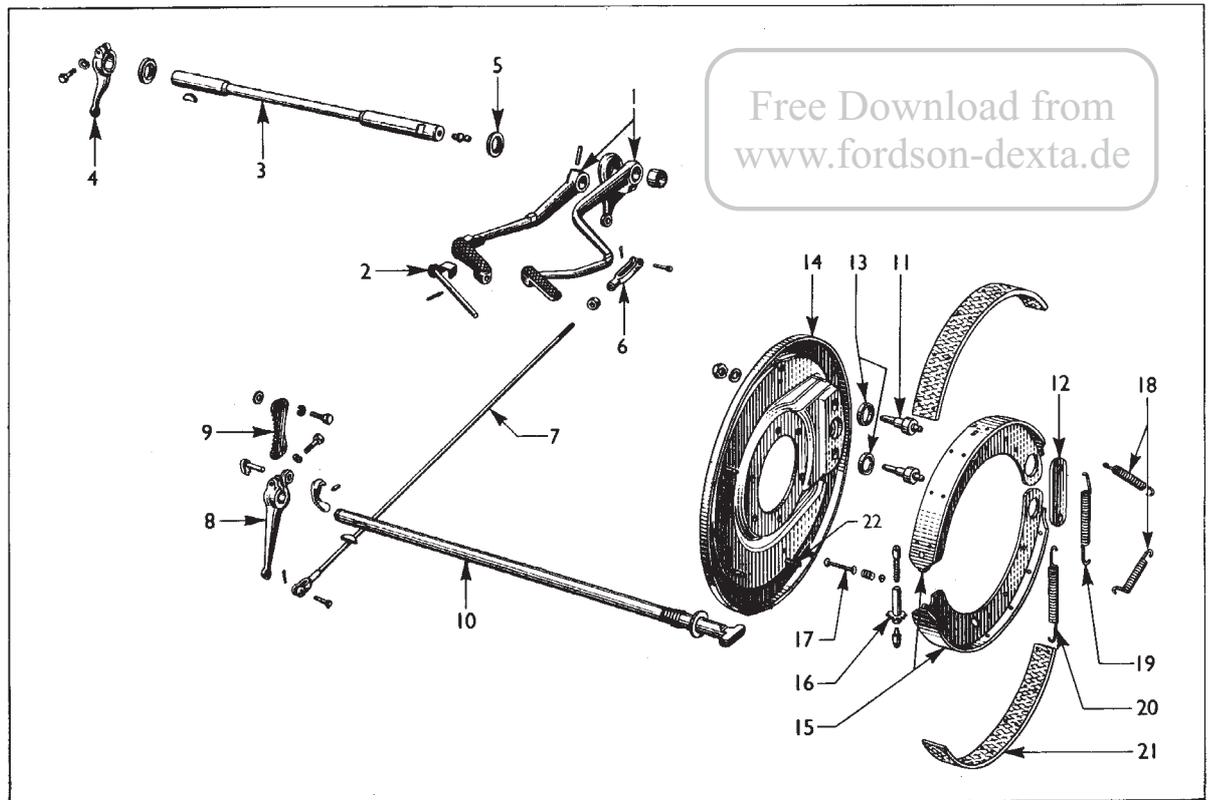


Fig. 1
Exploded View of Braking System

- | | | |
|------------------------------|------------------------|---------------------------|
| 1 Brake Pedal | 9 Parking Brake Sector | 16 Brake Adjuster Wheel |
| 2 Pedal Kocking Latch | 10 Brake Camshaft | 17 Holder Down Pin |
| 3 Brake Cross-shaft | 11 Anchor Pin | 18 Secondary Springs |
| 4 Brake Cross-shaft Lever | 12 Anchor Pin Plate | 19 Retracting Spring |
| 5 Brake Cross-shaft Oil Seal | 13 Anchor Pin Washers | 20 Adjuster End Spring |
| 6 Brake Rod Clevis | 14 Brake Back Plate | 21 Brake Lining |
| 7 Brake Rod | 15 Brake Shoes | 22 Adjustable Steady Post |
| 8 Brake Camshaft Lever | | |

DESCRIPTION

The rear wheels of the tractor are equipped with two-shoe internal expanding brakes operating in 14 in. drums. The brake linings are bonded to the shoes in production, but the shoes are drilled to enable replacement linings to be riveted to the shoes should they be required in service.

The brakes are operated independently by two pedals on the right-hand side of the tractor through a suitable linkage. The left-hand brake pedal is, however, fitted with a locking pin which can be engaged with the right-hand pedal so that the brakes will operate together. This pedal lock should always be engaged when the tractor is used on fast road work.

For parking purposes the brakes may be locked "on" by a pawl on the right-hand brake camshaft which can be engaged, by means of a latch, with a fixed sector on the transmission housing (Fig.2). To lock both brakes "on" for parking the pedal lock should first be engaged and the pedals depressed while the latch is moved rearwards to engage the pawl in the sector.

BRAKE ADJUSTMENT

Wear will take place on the brake linings due to normal usage and it will be indicated by a gradual increase in pedal travel before effective braking is obtained. This will be noticeable also during the initial bedding-in of the shoes. If operating

conditions are such that one brake is consistently used more than other, uneven wear will take place and the tractor will tend to pull to one side if the brakes are applied when the pedal lock is engaged.

The brake adjustment for normal lining wear should be carried out as follows:

1. Release the parking latch and jack up each wheel in turn to adjust.
2. Slide back the plate covering the adjuster aperture at the rear of the brake plate and, using a screwdriver, turn the notched adjuster wheel towards the rear of the tractor to expand the brake shoe in the drums (see Fig. 3).
3. Continue until a definite drag is felt when the wheel is turned, then slacken back the adjuster until the wheel is just free to revolve.
4. Repeat at the opposite wheel and finally road test the tractor to check brake operation.

Check the brakes for signs of pulling to one side or over-heating due to the shoes "dragging", and readjust if necessary. Close the adjuster aperture cover plates.

MAJOR BRAKE ADJUSTMENT

When new brake shoes are fitted or when the adjustable steady posts have been disturbed, it is necessary to carry out the following major adjustment on each brake.

1. With the rear end of the tractor completely jack up and the wheels removed, disconnect the brake rods from the pedal at their front ends and ensure that the brake camshafts are free to rotate.

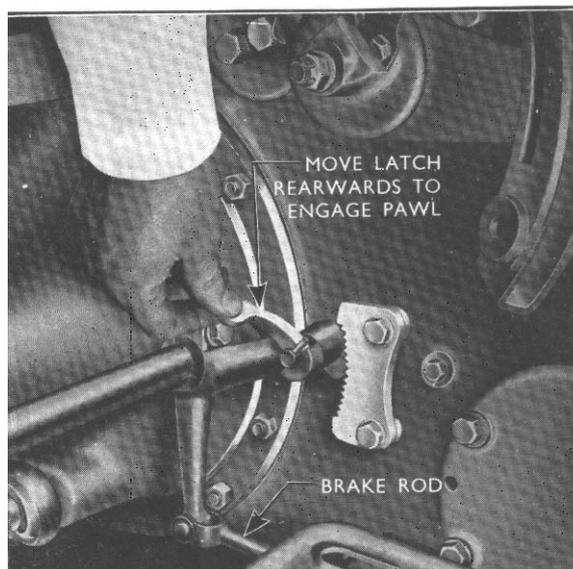


Fig. 2
Applying the Parking Latch



Fig. 3
Adjusting the brakes

2. To obtain an approximate setting for the adjustable steady posts, slacken off the locknuts and unscrew the posts (anti-clockwise) until they come out of contact with the shoes. The shoes will then remain against the fixed steady posts on the back plate. Screw in the adjustable steady posts until the brake shoes are lifted just clear of the fixed posts.
3. Carry out the brake minor adjustment previously described to establish a small shoe to drum clearance.
4. Working on one shoe at a time screw in the steady post clockwise until one edge of the brake lining contacts the drum causing in to drag. Next, turn the steady post anti-clockwise, again turning the drum by hand to check for dragging, and counting the number of turns on the steady post before the opposite edge of the shoe contacts the drum and causes it to drag. Finally, screw in the steady post half the number of turns counted and tighten the locknut.
5. Expand the brake shoe fully in the drums prior to reconnecting the brake linkage.
6. Block up the brake pedals in the raised position and slacken off the locknuts on the clevises at the front end of the brake rods.
7. Lightly pull on the front end of the brake rods to take up any free play in the linkage and adjust the clevises by screwing them along the rod as required, to line up the holes in the clevis with the hole in the brake pedal lever (or cross-shaft lever for left-hand siderod)
8. Fit the clevis pin, split pin securely and tighten the clevis lock nut.
9. Complete the adjustment by slackening back the adjuster unit on each brake assembly until the drums are free to turn without binding.

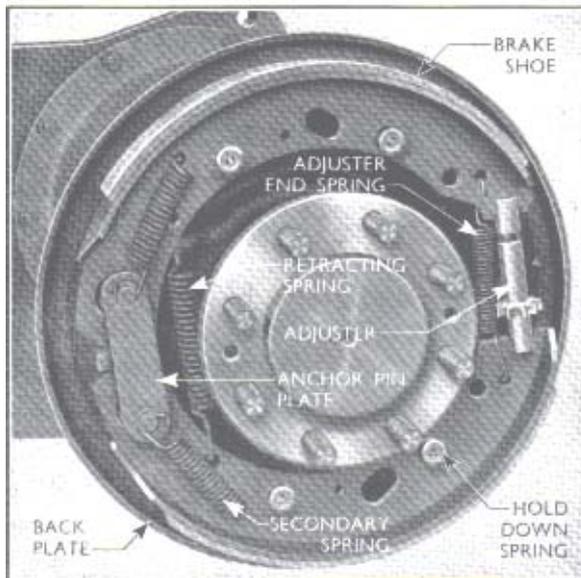


Fig. 4
Brake Shoes and Springs

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10. Finally, refit the wheels and drive the tractor to test of equal braking on both wheels and signs of overheating. Readjust if necessary on the brake adjuster wheels.

Once the brake linkage has been set as described above with the brake shoes expanded in the drums, it should not be necessary to alter the brake rod settings between major overhauls.

BRAKE OVERHAUL

To Dismantle

Jack up the rear end of the tractor and remove the wheel weights (if fitted) and wheels. Unscrew the two countersunk screws on each brake drum and remove the drums. If necessary, slacken back the brake adjuster to move the brake shoes clear of the drums to facilitate removal. Disconnect and remove the brake rods.

Each brake assembly should then be further dismantled as follows:

1. Disconnect the two secondary springs from the anchor pins. Brake spring pliers can be used for this operation or alternatiely a length of strong flexible wire looped around the spring end and used to expand the spring will facilitate removal.
2. Detach the anchor pin plate.
3. Pull the rear ends of the two brake shoes apart and lift out the brake adjuster unit. The adjuster end spring may then be detached from the shoes.
4. Remove the four hold down pins, springs and cups by compressing the outer cup inwards against the spring and turning through a quarter turn. The brake shoes may the be removed complete with the retracting spring. All four shoes are identical but as each shoe will have "bedded-in" to the drum,

all shoes should me marked on dismantling so that if they are only part worn they can be reassembled in the correct location.

5. To remove the brake camshaft:

(a) Unscrew and remove the brake camshaft lever cotter bolt and slide the lever off the end of the shaft. Note that the lever is further secured by means of a Woodruff key which should be carefully removed from the keyway in the shaft

(b) Slide the camshaft over plate and retaining spring along the shaft and remove the shaft through the hole in the back plate.

6. Remove the anchor pin washers from the anchor pins. If the anchor pins are worn they may be removed by unscrewing the large nut securing them to the back plate and driving out the pins.

Inspection of Parts

Clean all parts, inspect and renew a necessary.

1. The brake shoes should not be refitted if worn to less than 1/16 in. thick at any point. The linings are bonded to the shoes in production, but the shoes are drilled to enable linings to be riveted in position in service. When inspecting riveted linings the wear limit allowed should be 1/16 in.(1,5 mm) above the heads of the rivets.

2. If the anchor pins are badly worn on one side they may be turned through an angle to equalise wear by slackening the securing nut. Tighten the nut securely after adjustment to a torque of 150 lbs.ft. (200 Nm)

3. Check the brake springs and discard if they show signs of being weakened or if the spring ends are deformed.

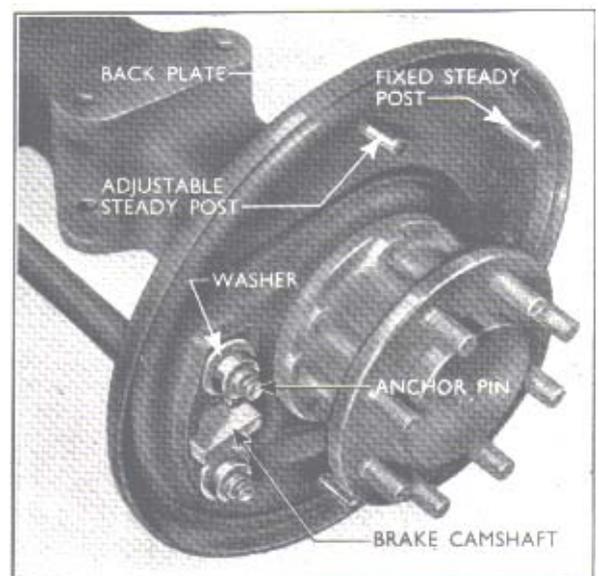


Fig. 5
Back Plate and Anchor Pins

Reassembly

On reassembly the anchor pins and washers, adjuster unit and the brake cam should be lightly lubricated with a zinc base grease. Do not use general purpose grease as it may melt under high temperatures and run onto the shoes.

1. Refit the anchor pins if removed. Grease the threads before fitting the spring washers and nuts and tighten to a torque of 150 ft.lbs(200 Nm). Place the anchor pin washers in position on the anchor pins.
2. Pass the brake camshaft through the back plate from the outside and fit the camshaft cover and retaining spring. Ensure that the camshaft lever Woodruff key and keyway are not damaged or burred and slide the lever onto the shaft. Secure by means of the cotter bolt.
3. Note that if the brake shoes are to be replaced without new linings being fitted they should be replaced in the same position from which they were removed. Fit the large retracting spring between the forward ends of the shoes and install the shoes on the anchor pins.
4. Fit the four hold down pins. Pass the pins through the back plate and the holes in the shoe and install the inner cup washer and the hold down spring. Press the outer cup washer inwards against the spring tension and turn through a quarter of a turn to lock the pin. The spring cup washers should be fitted with the convex face contacting the spring end.
5. Fit the adjuster end spring and install the brake adjuster unit between the rear ends of the brake shoes so that the notched wheel is in line with the adjusting slot in the back plate.
6. Position the anchor pin plate over the ends of the anchor pins and fit the two secondary springs. A length of flexible wire will again facilitate extending the springs to fit the hooked ends around the anchor pins.
7. Replace the brake drums and secure in position using the two countersunk screws.
8. Carry out the major brake adjustment previously described.

TO RENEW THE BRAKE BACK PLATE

To renew a brake back plate it is necessary to remove the axle shaft and bearing retainer from the axle housing and the procedure for carrying out this work is described fully in the Rear axle section under the heading "To Remove an Axle Shaft". In addition to the operations listed, the brake shoes must be removed as detailed under "Brake Overhaul".

It will be noted that a number of steel shims are fitted between the brake back plate and the axle housing at both sides of the tractor to provide an adjustment for axle shaft end float. The two axle

shafts being in direct contact at the centre of the differential, the end float of both shafts can be adjusted simultaneously by altering the shim thickness at either side of the axle. If a new back plate is fitted then, due to possible slight differences in the thickness of the old and the new back plates, the end float on the shafts may be altered and this should therefore be checked and readjusted if necessary. Refer to the Rear Axle section for full information on this adjustment.

BRAKE PEDALS AND LINKAGE

Both brake pedals pivot on a common shaft which passes through the clutch housing, where it is supported by two bronze bushes.

The right-hand side pedal turns on the shaft on two steel-backed bronze bushes, which are spaced apart. The left-hand side pedal is interposed between these bushes and is locked to the shaft by a drive fit cotter pin. A lubricator is fitted into the end of the shaft and is connected to the pedal bushes by suitable drillings.

At the left-hand end of the cross-shaft is secured the cross-shaft lever so that when the left-hand pedal is depressed, the lever moves forward actuating the left-hand brake rod and camshaft.

Rubber oil seals are fitted to the cross-shaft at both sides of the clutch housing.

To Remove the Brake Cross-shaft

1. Drain approximately one gallon of oil from the gearbox.
2. Disconnect the right- and left-hand brake rods at their forward ends, from the right-hand brake pedal and the brake cross-shaft lever respectively.
3. Remove the pinch bolt from the left-hand brake lever and pull the lever off the cross-shaft. Remove the Woodruff key from the shaft. Check that the end of the shaft is free from burrs and remove these if necessary, using a carborundum stone, before sliding the cross-shaft through the oil seals.
4. Remove the brake cross-shaft and both pedals as an assembly from the right-hand side of the clutch housing.

To Replace the Brake Cross-shaft

1. Replace the cross-shaft and pedals as an assembly taking care not to damage the seals as the shaft is passed through the housing.
2. Refit the Woodruff key to the cross-shaft.
3. Replace the cross-shaft lever and secure in position with a pinch bolt.
4. Reconnect the brake rods to the brake levers, refit the clevis pins and securely split pin.
5. Refill the gear box with an approved oil of the correct grade.

To Renew the Cross-shaft Oil Seals

1. Remove the brake cross-shaft as previously described.
2. Using a suitable lever, remove the cross-shaft oil seals from the clutch housing.
3. Press the new seals into the housing with the steel case of the seals facing outwards, using the adaptor (Tool No. T.7078) on the universal handle (Tool No. 550).
4. Refit the brake cross-shaft as previously described.

To Overhaul the Brake Pedals

1. Remove the brake cross-shaft as previously described.
2. Suitably support the brake pedals and cross-shaft and drive out the tapered cotter pin securing the left-hand pedal to the shaft. Both pedals can then be slid off the shaft.

3. If the brake pedal bushes require renewal, press or drive out the old bushes from their locations. When fitting the new bushes it should be noted that the longitudinal grease groove in each bush should line up with a drilling in the cross-shaft. The taper pin bore in the pedal and the corresponding flat on the cross-shaft can be used as guides to obtain the correct position for the grease grooves.

The bushes are pre-sized and do not require reaming after assembly.

4. The brake pedal locking latch may be removed by first tapping out the tension pin which acts as a stop. Any worn parts can then be renewed and the locking latch reassembled.

Fit the latch into the pedal and tap in a new tension pin. The latch should be suitably supported as the pin is tapped in to prevent distortion and approximately .56 in. (14,22 mm) of the pin should be left protruding from the front of latch.

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SPECIFICATION AND REPAIR DATA - BRAKING SYSTEM

Type	Mechanical internal expanding
Brake actuation	...	...	...	...	Rod
Diameter of drums	...	...	...	...	14 inch (355,6 mm)
Brake Linings					
Material	...	...	...	...	Woven or moulded
Length per shoe	...	...	...	...	13.3 inch (337,8 mm)
Width	...	...	...	...	2 inch (50,8 mm)
Thickness	...	...	...	...	0.25 inch (6,35 mm)
Total area	...	...	...	...	106.5 sq.ins. (687 sq.cm.)
Parking brake lock	...	...	...	...	Pawl and sector to lock pedals in "down" position
Anchor pin diameter	...	...	...	...	1.122 to 1.125 inch (28,499 to 28,575 mm)
Brake Springs					
Adjuster end spring:					
Overall free length	...	...	...	...	5.31 inch (134,87 mm) approx
Length under load	...	...	...	...	5,75 inch (146,05 mm) under 36 to 44 lbs. (16,3 to 20 Kg) tension
Retracting spring:					
Overall free length	...	...	...	...	5.44 inch (138,18 mm) approx
Length under load	...	...	...	...	6.50 inch (165,10 mm) under 90 to 110 lbs (40,8 to 49,9 Kg) tension
Secondary springs:					
Overall free length	...	...	...	...	3.28 inch (83,34 mm) approx
Length under load	...	...	...	...	3.81 inch (96,82 mm) under 90 to 110 lbs (40,8 to 49,9 Kg) tension

WHEELS AND TYRES

WHEEL WEIGHTS

Wheel weights are available for use on both front and rear wheels. Rear wheel weights increase wheel adhesion, whilst front wheel weights are used to counteract the effect of certain heavy rear mounted equipment where the centre of gravity is considerably overhanging the rear of the tractor.

Fitting Front Wheel Weights

Cast iron weights may be fitted to the inside of each front wheel to provide an additional 100 lbs. on each side of the tractor. To fit front wheel weights it is necessary to remove the wheel from the hub and attach the weight to the inside of the front wheel disc with four nuts, bolts and washers supplied with the weight.

Fitting Rear Wheel Weights

Each cast iron weight is approximately 80 lbs. and normally a maximum of three weights per wheel are found to be sufficient for most agricultural conditions.

If only one weight is to be fitted, assemble the three spacers to the bolts, insert the bolts from the inside of the wheel and secure the weight to the wheel disc by the bolts, nuts and lockwashers. (In the case of Power Adjusted wheels the spacers are already welded to the disc.)

If auxiliary weights are required it will be necessary to fit the three mounting bolts with the head in the recessed hole provided, before securing the weight

to the rear wheel disc. The auxiliary weight can then be assembled to these three bolts using the nuts and washers provided.

If additional weight is required adopt the same procedure, making certain that the three bolts are assembled to the preceding weights, before securing it to the wheel disc or auxiliary weight.

Liquid Ballast

Liquid ballast may be used in the rear tyres to give increased rear wheel adhesion and full details are given in the Instruction Book.

TYRES

When refitting rear tyres or wheels care must be taken to ensure that the tyre tread is pointing in the correct direction as indicated by the arrow on the tyre wall. This will ensure maximum adhesion and that the self-cleaning action of the tyre is utilised.

POWER ADJUSTED REAR WHEELS

Power Adjusted Rear Wheels are available as an optional extra and provide a rapid means of adjusting the rear track between 48 ins. and 76 ins. (inch) Engine power is used to alter the wheel settings and an adjustment range of 48 ins. to 64 ins. is obtainable with the wheel discs mounted on the rear hubs in the standard position, i.e. dished inward from centre to rim. A further adjustment range of 60 ins. to 76 ins. may be obtained by interchanging wheel assemblies.

Changing the track with a power adjusted wheel is similar to turning a bolt in a nut. The rim acts as the nut, with slotted channel bars which serve as threads. The wheel disc acts as a bolt having a helical shape with a 2 in. pitch.

The different track widths available are shown in Fig 6 and it will be seen that one complete revolution of each wheel makes a 2 in. alteration in the track. Both rear wheels should be adjusted to symmetrical positions to obtain the settings indicated, but by placing the spacer clamp in other channels on the rim spacings at half inch intervals can be made.

It is not necessary to jack up the wheels clear of the ground and once the desired setting has been determined each wheel should be adjusted separately as follows:

1. Loosening the Rim from the wheel

(a) Remove the large nut on the spacer clamp, turn the spring loaded locating stud through 90° and remove the clamp from the wheel.

(b) Loosen the nut on each of the three rectangular locking clamps, slide the clamps toward the hub of the wheel and tighten the nuts to hold the clamps in position.

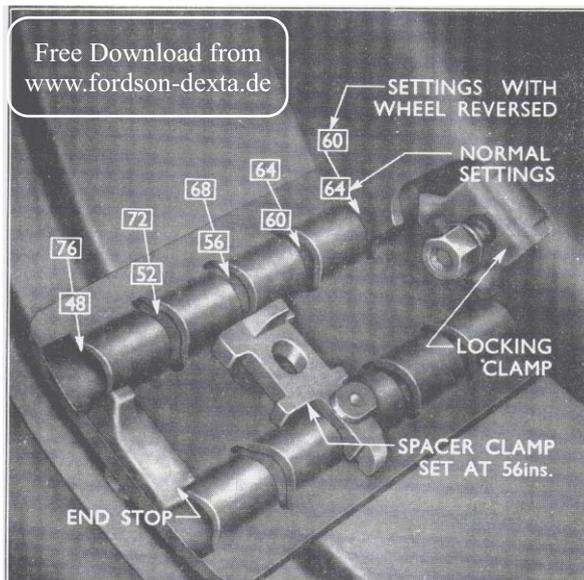


Fig. 6
Track Width Setting

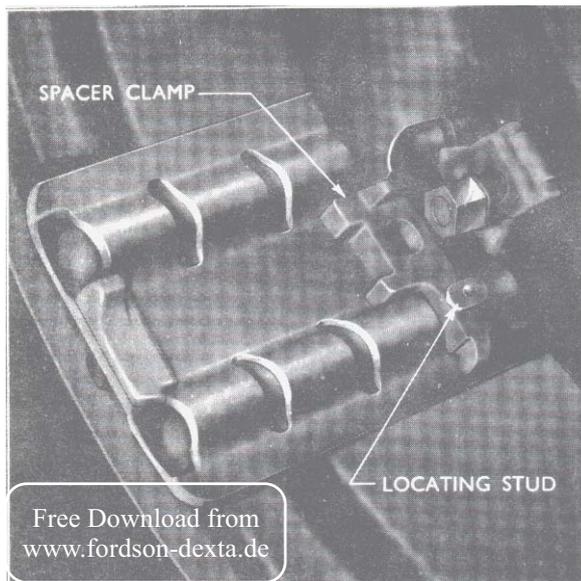


Fig. 7
Wheel Disc Against Spacer Clamp

2. Moving the Wheel Disc in the Rim

NOTE.-To increase the track (i.e. to move the wheels outwards) use low reverse gear for the left wheel and low forward gear for the right wheel.

To decrease the track use low reverse gear for the right wheel and low forward gear for the left wheel. (a) The final track adjustments must always be made inward (providing the wheels are not reversed). If an increase in track is required it will be necessary to go beyond the desired setting and then come back, therefore with the engine at idling speed move the tyre outward by engaging the clutch with the tractor in the correct gear and at the same time holding the opposite wheel with the brake so that the tractor rolls slowly. Disengage the clutch immediately the wheel disc strikes the end stop.

(b) Place the spacer clamp in the channel thread bar for the desired settings as shown in Fig. 6. The oval foot of the spring loaded locating stud is inserted in the channel slot, then turned so that it is secured in the channel.

(c) Move the wheel inward by selecting the correct gear, engaging the clutch with the engine at idling speed and braking the opposite wheel to let the tractor creep while the wheel disc is revolving. Disengage the clutch immediately the wheel strikes the spacer clamp, see Fig. 7.

3. Securing the Rim in Position

(a) Remove the spacer clamp from the channel bar by turning the spring loaded locating stud through 90°.

(b) Use the spacer clamp as the fourth wheel locking clamp. Place the clamp on the bolt with the lug in the holding slot and the spring loaded locating stud through the wheel disc. Install the large nut and washer and tighten the nut securely. The spacer clamp used as a driver clamp is shown in Fig. 8.

(c) Loosen the nuts on the three rectangular locking clamps and move them into the clamping position in the thread channel.

Tighten all clamp nuts securely.

NOTE: The clamp nuts should be tightened again after the tractor has been used for a short period.

4. Changing the Wheel Discs

When a track greater than 64 ins. is required wheel spacings of 68, 72 or 76 ins. can be obtained by setting the track at 48 ins. for a 76 in. track, 52 ins. for a 72 in. track and 56 ins. for a 68 in. track then reversing the wheels on the tractor.

(a) Loosen the eight nuts on the wheel stud at each rear hub.

(b) Raise the rear of the tractor and be sure it is firmly supported.

(c) Remove the nuts and interchange the wheels so that they dish outward from centre to rim. The arrow on the side wall of the tyre should always point in the direction of forward rotation of the wheel.

(d) Replace the nuts, lower the tractor and tighten the nuts securely.

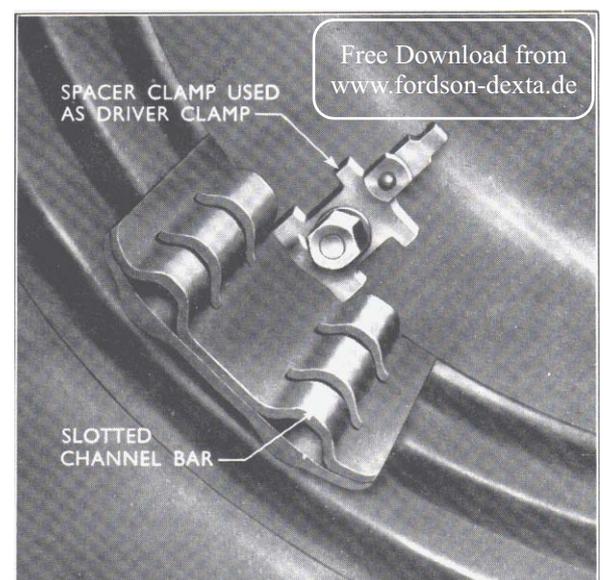


Fig. 8
Spacer Clamp Used as a Driver Clamp

NOTE:- With the wheels reversed (dished outward) it will be necessary to set the spacer clamp and locking clamp from the inside of each wheel when making adjustments. Disengage the spacer and locking clamps, move the tyre to its extreme "in" position and

set the spacer clamp as desired. Use the tractor power to adjust the wheel to the desired width and, after adjusting, replace the spacer clamp and locking clamps and tighten them securely.

SPECIFICATION AND REPAIR DATA - WHEELS AND TYRES

Tyres					
Front					
Standard	..	..	..	..	4.00 x 19 4-ply rating
Optional	..	..	..	..	5.50 x 16 6-ply rating
Rear					
Standard	..	..	..	..	10 x 28 4-ply rating
Optional	..	..	..	..	11 x 28 4- or 6-ply rating
Tyre Pressure					
Front					
4.00 x 19	..	..	..	..	34 lbs./sq.in. (2390 gm./sq. cm.) 42 lbs./sq.in. (2950 gm./sq. cm.) with front wheel weights
5.50 x 16	..	..	..	..	20 lbs./sq.in. (1410 gm./sq. cm.) 26 lbs./sq.in. (1830 gm./sq. cm.) with front wheel weights
Rear					
10 x 28	..	..	..	..	12 lbs./sq.in. (845 gm./sq. cm.)
12 x 28	..	..	..	..	12 lbs./sq.in. (845 gm./sq. cm.)
Wheel Weights					
Front	..	..	..	..	100 lbs. (45 Kg) per wheel
Rear	..	..	..	..	80 lbs. (36 Kg) each weight, recommended up to three weights per wheel
Approximate Rolling Radius of the Rear Wheel					
10 x 28	22.13 to 22.2 ins. (56,21 to 56,39 cms)
11 x 28	22.7 to 22.8 ins. (57,66 to 57,91 cms)

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