THE REAR AXLE

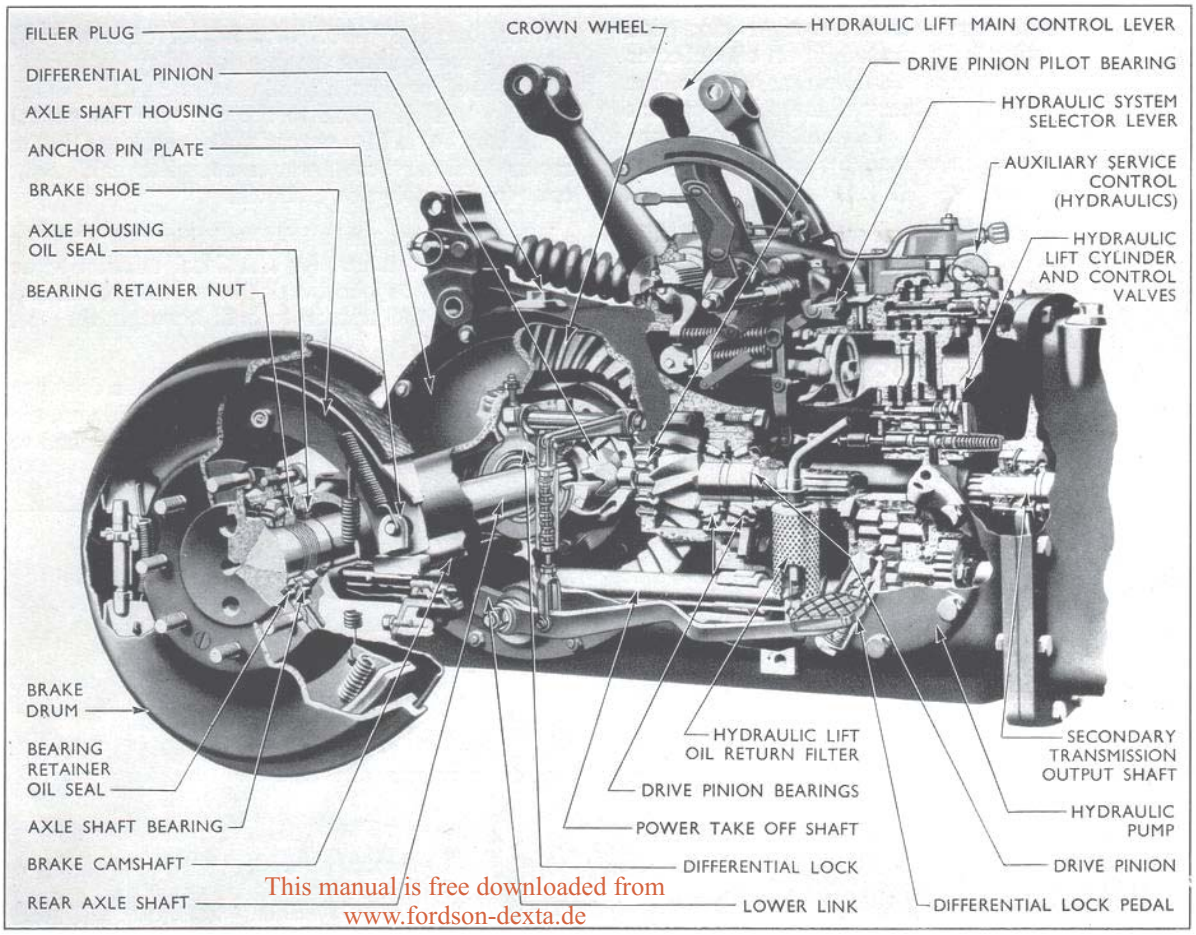

Fig. 1
Sectioned View of Rear Axle and Hydraulics

Description

The drive from the gearbox output shaft is transmitted through a sleeve type coupling to a spiral bevel pinion mounted on taper roller bearings in the rear transmission centre housing. The pinion meshes with a crown wheel which is attached to the casing of a four pinion differential assembly, the whole being straddle mounted on taper roller bearings. The cups of the bearings locate in axle shaft housings which are attached to each side of the centre housing.

On tractors produced since November 1961, a differential locking device has been incorporated consisting essentially of a sliding coupling which is mounted on the right-hand differential side gear and connected through suitable linkage with a foot pedal, the operation of which locks this side gear to the differential casing.

Each axle shaft is supported at its outer end by a single taper roller bearing and the inner ends of the two shafts are in direct contact at the centre of the differential assembly, so that an inward loading on one axle shaft will be transferred to the opposite axle shaft and bearing. Each axle shaft bearing will therefore withstand the vertical loading of the wheel it supports and any outward thrust imposed on the wheel, while any inward thrust will be transmitted through the axle shafts to the opposite bearing.

The rear transmission housing extends forward forming a compartment which houses the hydraulic power lift pump and ram cylinder. A common supply

of oil is used for lubricating the rear transmission and operating the hydraulic power lift. The crown wheel and differential assembly is partly immersed in oil and an oil trough cast integral with the crown wheel thrust block collects oil from the crown wheel and conveys it to the drive pinion bearings and the left-hand side differential bearing. On early tractors not fitted with a differential lock the right-hand side differential bearing is lubricated by an oil deflector plate riveted to the pinion pilot bearing housing, but the larger right-hand bearing fitted to current production tractors with differential lock runs partially submerged in oil and the deflector plate is not required.

The oil is filtered by a gauze screen at the hydraulic pump inlet and also by a partial flow paper element type filter at the outlet. In addition a magnetic plug is fitted at the pump inlet to remove any metallic particles from circulation.

The power take-off drive is engaged by a lever at the left-hand side of the rear transmission housing which moves a splined coupling forward to engage with the hydraulic pump drive gear. The drive is then taken rearwards by a shaft which emerges at the rear of the tractor. The P.T.O. shaft is supported at its mid-length by a bronze bush and at its rear end by a roller bearing.

Differential Lock Operation

When one rear wheel of a tractor strikes a soft patch of ground and spins, the normal type differential action allows virtually all the drive to be applied to this wheel and little to the opposite rear wheel which may be on firm ground. The result is that the tractor is either brought to a complete halt or, at least, considerably slowed down.

When a differential lock is fitted this disability may be overcome as it enables additional traction to be obtained from the wheel which is on firm ground and thus enables the tractor to pull through the soft patch.

Basically, this locking device consists of a dog type coupling which is splined to, but free to slide on, the right-hand differential side gear, and is designed to

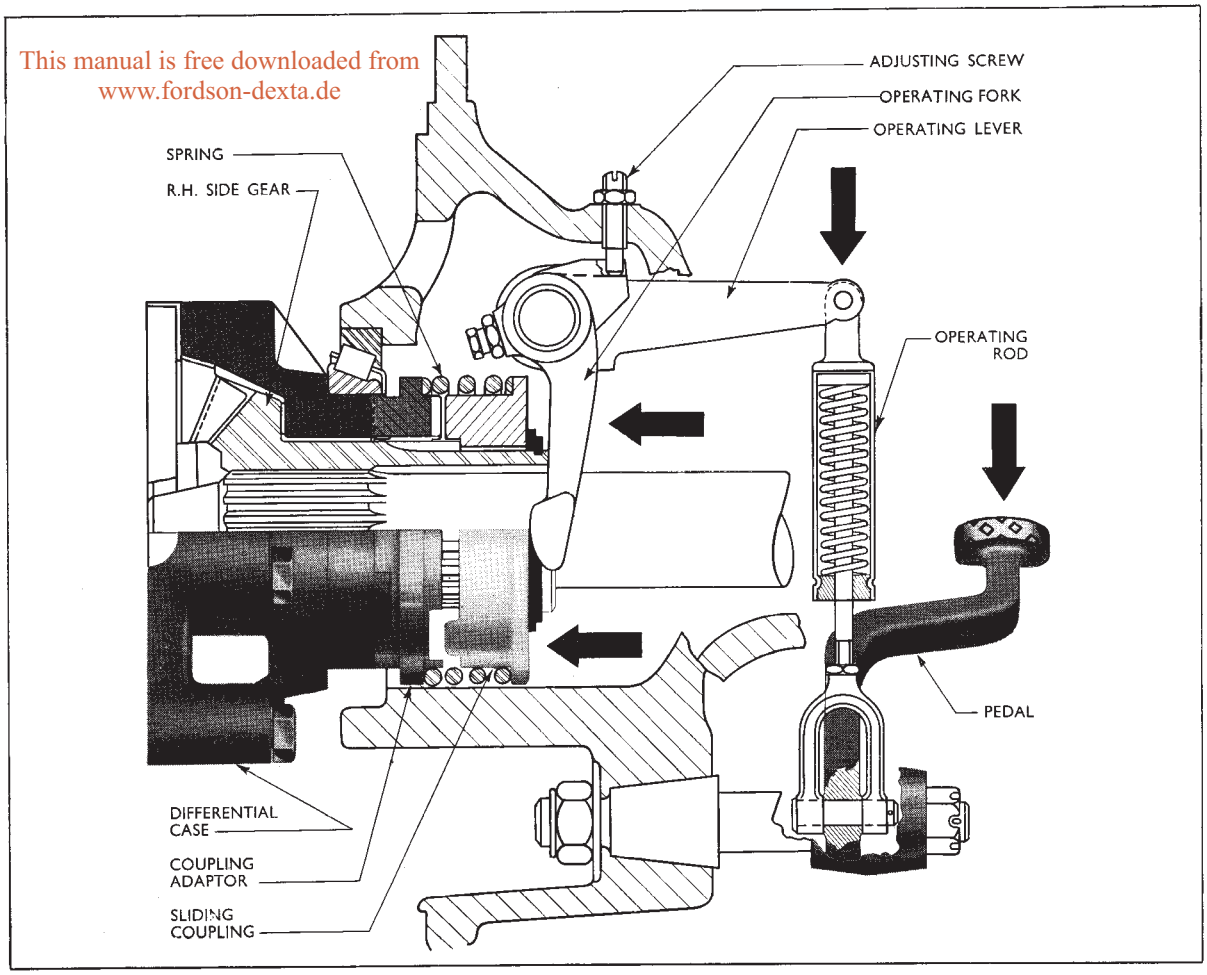

Fig. 2
The Differential Lock

positively lock the differential side gear to the differential case. The connection is made through a coupling adaptor which has dog teeth on both sides faces, those on the inside engaging with dogs machined on the differential case and those on the outside with the sliding coupling (see Fig. 2).

The sliding coupling is connected via a fork, operating lever and spring loaded operating rod assembly to a foot pedal situated above the right-hand footplate.

In operation, depression of the foot pedal will first move the sliding coupling into contact with the fixed adaptor and then compress the spring in the operating rod assembly. As the dogs of the sliding coupling come into alignment with the tooth spaces in the fixed coupling adaptor the operating rod spring tension will move the sliding coupling into engagement with the coupling adaptor. The fact that the spring supplies the final operating force obviates the possibility of damage should excessive force be applied to the foot pedal.

Once full engagement has taken place the foot pedal should be released as the sliding coupling will be held in engagement by the side loading on the splines until such time as equal traction is obtained from both wheels. When this condition is reached the side loading is released from the splines and a coil spring, fitted between the sliding coupling and the fixed coupling adaptor automatically disengages the lock.

ROUTINE MAINTENANCE, MINOR ADJUSTMENTS AND REPAIR

Check the transmission oil level every 50 operating hours and if necessary, top-up to the level plug hole with lubricant of the correct grade. Remember, that if a number of auxiliaries are being operated from the tractor hydraulics it represents a loss to the transmission lubricant and an equivalent amount should be added to make up the quantity used for this purpose.

Every 12 months drain and discard the rear transmission lubricant and refill with new oil of the correct grade—approximately 34 pints (19.32 litres) will be required on a standard tractor without auxiliary hydraulic equipment.

Oil should be of good quality with the following S.A.E. viscosity number :

Above 20°F (—7°C)	30 H.D. or 20W/30 H.D.
Below 20°F (—7°C)	20 H.D. or 20W/30 H.D.

Every 50 operating hours a grease gun should be applied to the differential lock operating pedal lubricator, at the same time apply a little oil to the upper and lower clevis pins of the spring-loaded differential lock operating rod to ensure free operation of the linkage.

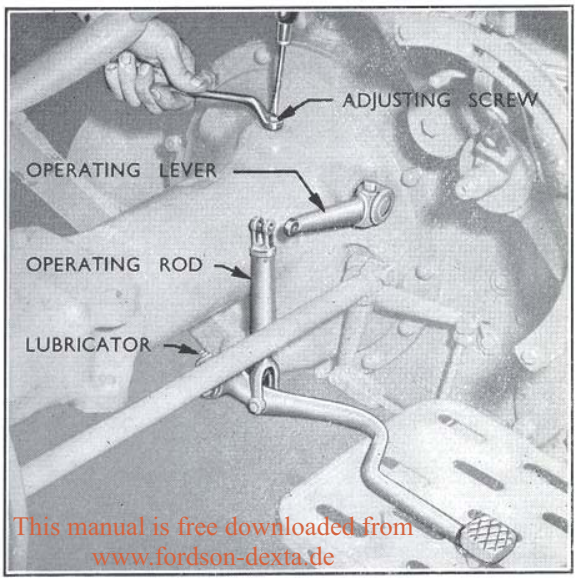

Fig. 3
Adjusting the Differential Lock

Adjusting the Differential Lock

It is important that sufficient clearance exists between the differential lock pedal and the footplate to ensure full engagement of the lock. Should there be any doubt that full engagement is not taking place the following adjustment checks should be made :

1. Remove the split pin and clevis pin securing the operating lever to the spring-loaded operating rod and depress the operating lever until the operating fork is felt to just contact the differential lock sliding coupling.

2. Slacken off the locknut and screw down the adjusting screw until it contacts the bottom of the slot in the operating fork (see Fig. 3). The point of contact is determined by observing the operating lever which will begin to move immediately the screw reaches the bottom of the slot.

NOTE.—It is most important that the adjusting screw is not turned down past this point.

3. Turn back the adjusting screw one-quarter of a turn and tighten the locknut.

4. Allow the foot pedal to rest on the footplate, ensuring that there is no dirt or grit under the pedal. Push down the operating lever until the differential coupling is fully engaged, and, without compressing the spring in the operating rod, slacken the locknut and adjust the length of the operating rod until the clevis pin can just be inserted to connect the operating rod clevis to the lever (see Fig. 4).

5. Remove the clevis pin and shorten the operating rod assembly by one to two turns on the clevis then re-insert the clevis pin.

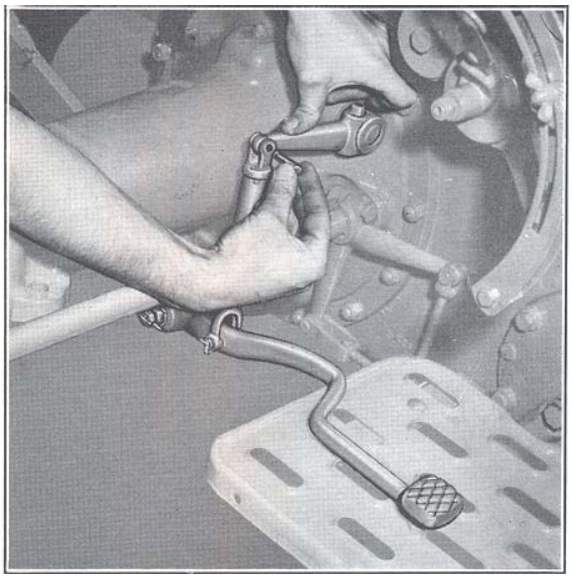

Fig. 4
Adjusting the Differential Lock Linkage

6. Tighten the clevis locknut and observe the last $\frac{1}{4}$ in. (6.35 mm.) of pedal movement until it strikes the footplate. If adjusted correctly this final pedal movement should result in approximately 0.04 in. (1.02 mm.) compression of the spring inside the operating rod tube without movement of the operating lever, i.e. the operating rod will move this extra amount out of the tube after all movement of the operating lever has ceased.

7. Secure the operating rod to operating clevis pin with the appropriate split pin.

Differential Lock Operating Pedal and Linkage

To Remove

1. Remove the split pins and clevis pins securing the operating rod assembly to the pedal and to the operating lever and remove the rod.

2. Remove the split pin, castellated nut and thrust washer securing the operating pedal and slide the pedal, sleeve and inner thrust washer from the pedal support.

If it is necessary to replace the pedal bush, knock out the old bush with a suitable drift. Replace the bush, using Tool No. T.4093 with the 550 handle, ensuring the lubrication hole in the bush is lined up with the grease nipple hole in the pedal.

To Replace

1. Replace the inner-thrust washer, pedal sleeve, pedal and the outer thrust washer on the pedal support shaft and secure with the castellated nut and split pin.

2. Connect the operating rod to the operating lever and to the pedal with the appropriate clevis pins.

3. Operate the pedal to ensure free movement and, if necessary, adjust the differential lock as previously described.

4. Secure the clevis pins with appropriate split pins.

OVERHAULING THE REAR AXLE

Before undertaking major repairs to the rear transmission the following points should be noted :—

With the introduction of a differential lock in November 1961, changes were made to the right-hand half of the differential case, the right-hand side gear of the differential, the differential right-hand bearing and the right-hand axle shaft housing. None of these parts are interchangeable with those previously used.

The Super Dexta rear transmission whilst basically the same as that used on the current standard type Fordson Dexta is fitted with a number of different detail parts and care must be taken to select the correct parts when carrying out replacement.

The crown wheel and pinion ratio of the standard type Dexta is 6.66 to 1 whereas that of the Super Dexta is 6.166 to 1. The number of pinion teeth is the same on both models but the standard type Dexta crown wheel has 40 teeth whilst the Super Dexta has 37.

The driving pinion and pinion coupling used on the standard type Dexta have 10 splines whilst those used on the Super Dexta have 14.

The driving pinion pilot bearing used on the Super Dexta has a larger internal bore diameter and a greater width than the bearing fitted to the standard type Dexta.

The driving pinion taper roller bearings fitted to the Super Dexta and to the current standard type Dexta are slightly wider and the rollers lie at a shallower angle from those fitted to Dexta tractors built before the introduction of the Super Dexta. These bearings may, however, be fitted as direct replacements for those originally fitted to early Dexta tractors providing the cup and cone are of the same type. The Super Dexta bearing locknuts, tab washer and thrust washer differ in size from those used on the standard type Dexta and these parts are not interchangeable.

To provide clearance for the Super Dexta drive pinion pilot bearing a shallow recess is machined around the periphery of the differential case at the joint line of the two halves. This differential case may be fitted to any Dexta with differential lock. The case used on early tractors without differential lock is not suitable for tractors with differential lock. The case used on standard type Dexta tractors with differential lock prior to the introduction of the Super Dexta did not incorporate the recess at the joint line and is therefore not suitable for use on the Super Dexta.

Rear axle shafts fitted to the Super Dexta and also the current standard type Dexta are threaded to

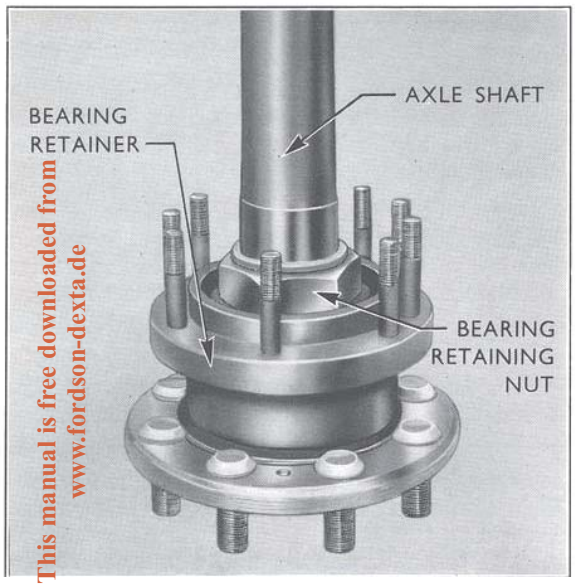

Fig. 5
Axle Shaft Bearing Retaining Nut

accept a self-locking nut for retaining the axle shaft bearing. The same bearing is retained by a shrunk-on collar to the early Fordson Dexta axle shaft and the latter is not suitable for use on current production tractors.

TO SEPARATE THE REAR TRANSMISSION FROM THE GEARBOX

The following sequence is necessary when separating the tractor in order to carry out a rear axle overhaul.

1. Unscrew the rear axle drain plug and remove the oil. The oil should not be re-used if there is the possibility of metallic particles being present in the oil.

2. Disconnect the brake and clutch operating rods at their rear ends by removing the split pins and clevis pins.

3. Remove the two control panel side plates by unscrewing the four self-tapping screws in each, and disconnect the rear lamp connections from the main wiring loom. Release the wiring from the clips on the gearbox housing and pull the wiring through the holes in the housing flanges.

4. Unscrew the bolts and disconnect the footplate brackets from each side of the gearbox. Suitably support the gearbox and rear transmission and unscrew the flange bolts when the tractor may be separated at this point. A certain amount of oil may be expected to run from the housings when separated and a container should accordingly be placed in position.

To Reassemble the Rear Transmission to the Gearbox

1. Ensure that the gearbox and rear transmission housing flanges are clean, and use a new gasket for the joint.

2. Install guide studs, Tool No. T.7068, at diametrically opposite points on the gearbox housings flange and join the rear transmission to the gearbox. Ensure that the rear transmission is located on the dowels on the gearbox flange and fit the flange bolts and nuts. Remove the guide studs and tighten the flange bolts and nuts securely.

3. Remove the gearbox support and reconnect the footplate brackets to the gearbox.

4. Re-locate the rear lamp wiring through the housing flanges and the clips on the gearbox. Reconnect the wiring snap connectors and replace the control panel side plates.

5. Reconnect the brake and clutch operating rods replacing the clevis and split pins.

6. Refill the rear transmission with 34 pints of the correct grade of oil.

TRANSMISSION TO PINION COUPLING

In order to replace this coupling it is necessary to separate the rear transmission from the gearbox as previously described. After replacing the coupling on the drive pinion shaft fit a new gasket and reassemble the transmission to the gearbox as described under ' To Reassemble the Rear Transmission to Gearbox.'

If fitting a new coupling note that the correct coupling for a standard type Dexta has 10 splines, whilst that for a Super Dexta has 14.

REAR AXLE SHAFTS, BEARINGS AND OIL SEALS

To Remove

1. Jack up the tractor under the rear axle housings and remove the wheel weights (if fitted), the wheel, and the brake drum which is secured by two countersunk screws. The brake adjuster should be slackened back if necessary to retract the brake shoes before the drum is removed.

2. Disconnect the footbrake and handbrake operating rods from the foot and handbrake camshaft levers by removing the split pins and clevis pins.

3. The following operation is not necessary when removing a right-hand axle shaft, or a left-hand axle shaft when a handbrake is not fitted.

When a handbrake is fitted, disconnect the rear lamp conduit from the retaining clips on the fender and foot-plate, unscrew the three bolts securing the fender to the foot-plate and the two bolts securing the fender to the rear axle housing. Swing the fender to one side taking care to place no undue strain on the rear lamp wiring.

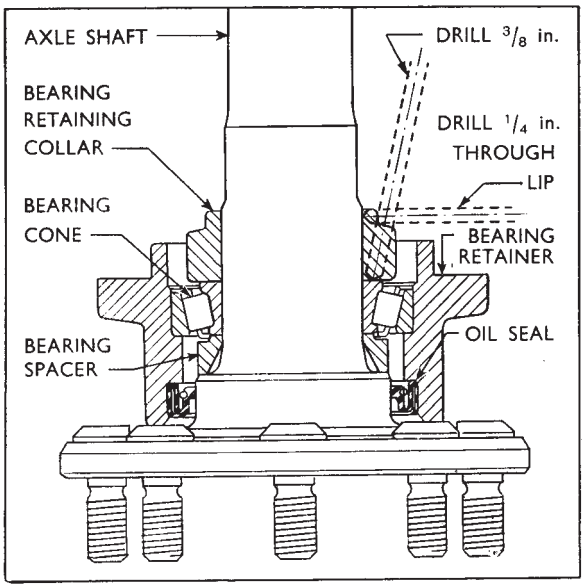

Fig. 6
Drilling Procedure for Axle Shaft Bearing Collar

4. Unscrew the ten bearing retainer to axle shaft housing nuts and remove the axle shaft, bearing retainer, brake shoes and back-plate, brake camshaft, and handbrake lever and tube (where fitted) as an assembly. Support the axle shaft carefully when withdrawing to prevent damage to the axle housing oil seal. Also support the brake camshaft as it will tend to drop when it is withdrawn from the bush in the axle housing.

5. Withdraw the axle shaft and bearing retainer assembly from the brake back-plate and shoe assembly.

6. Where a current type tractor is being handled, remove the nut retaining the axle shaft bearing using wrench Tool No. T.4095.

On tractors produced before the introduction of the Super Dexta the bearing retainer was secured to the axle shaft by a shrunk-on collar. In order to remove the bearing retainer it will be necessary to drill and crack the bearing retainer collar as described below.

(i) Place the shaft horizontally with two of the wheel studs resting on a wood block to prevent the shaft rotating. Centre punch and drill vertically through the lip of the collar, using a $\frac{1}{8}$ in. pilot drill and a $\frac{1}{4}$ in. drill (see Fig. 6). Drill carefully and stop when the drill contacts the hardened surface of the shaft as indicated when the drill speed increases.

(ii) Stand the shaft vertically on a wood block or similar surface and again centre punch and drill the collar at the same point as previously, using a $\frac{3}{8}$ in. drill and holding the drill as near to the vertical as possible to ensure it can pass the full length of the collar without contacting the shaft. The drill speed will again increase when it contacts the hardened face of the bearing cone.

(iii) Insert the point of a suitable chisel in the hole and drive in with a sharp blow to split the collar. The collar may then be lifted off the shaft.

7. Remove the bearing retainer by clamping Tool No. T.4069 in a vice as shown in Fig. 7, fit the axle shaft inside the tool and secure the bearing retainer to the tool flange using the bearing retainer nuts.

8. Use the large wrench to turn the centre screw and withdraw the bearing retainer assembly (see Fig. 7). The bearing spacer may then be removed from the shaft and the bearing cone from the retainer.

9. Using main Tool No. T.4060 with adaptors T.4060–4, place the adaptor plate over the bearing retainer studs, fit the split adaptors to engage with the bearing cup and the centre button on the tool, and tighten the large wing nut to pull the bearing cup from its location in the retainers.

To fit the new cup it is necessary only to reverse the position of the adaptor plate and pass the tool shaft through the centre of the bearing retainer. The bearing cup may then be drawn into position.

10. The oil seal may be removed without removing the bearing cup by driving the seal out of its location in the retainer.

To Reassemble

Clean all parts, inspect and renew as necessary.

It is advisable always to renew the bearing cup, seal and bearing cone if there is any possibility of them being damaged during removal.

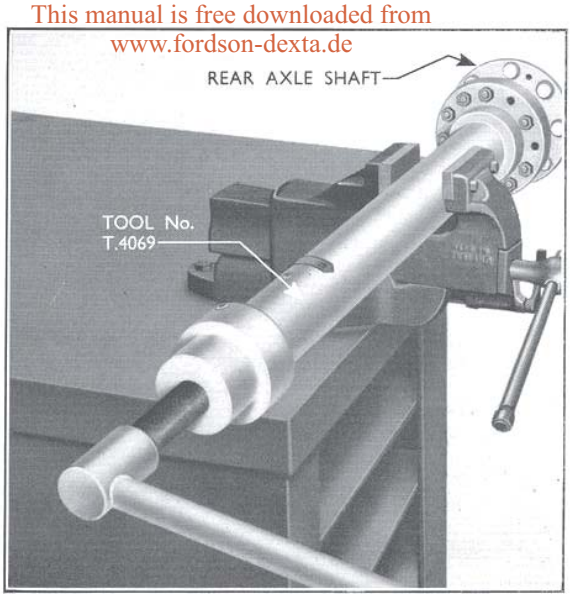

Fig. 7
Removing the Axle Shaft Bearing

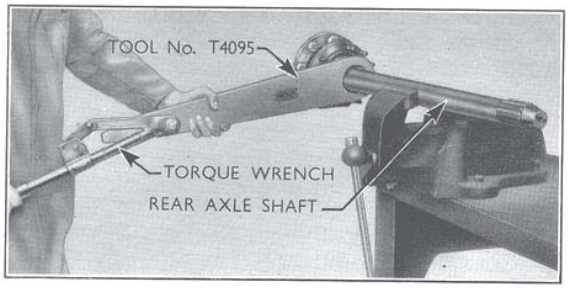

Fig. 8
Tightening the Axle Shaft Bearing Retaining Nut

1. To fit a new seal use adaptors Tool No. T.4070 with the 550 handle, ensuring that the lip of the seal faces inwards.

2. Stand the axle shaft vertical on a wood block surface to prevent damage to the stud threads and fit the bearing spacer over the shaft with the tapered inside edge downwards.

3. Fit the bearing retainer over the shaft, ensuring the oil seal lip seats correctly, and pack the retainer with grease.

4. Bolt adaptor, Tool No. T.4069–1, onto the remover tool and use as a driver to locate the bearing cone on the shaft. The bearing should be fitted with the cone facing downwards and the central screw of the tool should be screwed well back to ensure that it does not contact the end of the axle shaft.

5. If a current type tractor is being handled, secure the bearing to the axle shaft with a new self-locking nut and tighten to a torque of 230 to 250 lb. ft. (31.78 to 34.55 kg.m.). This torque can be achieved by using Tool No. T.4095 with a standard torque wrench set to 100 lb. ft. (13.82 kg.m.) (see Fig. 8). The tool is designed to multiply the torque to the 230/250 lb. ft. (31.78/34.55 kg.m.) required.

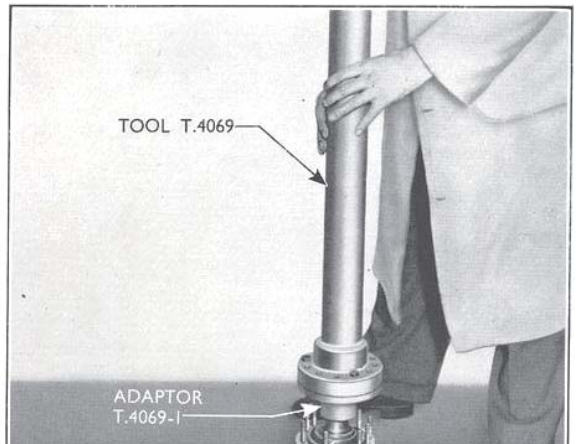

Fig. 9
Replacing an Axle Shaft Bearing Collar

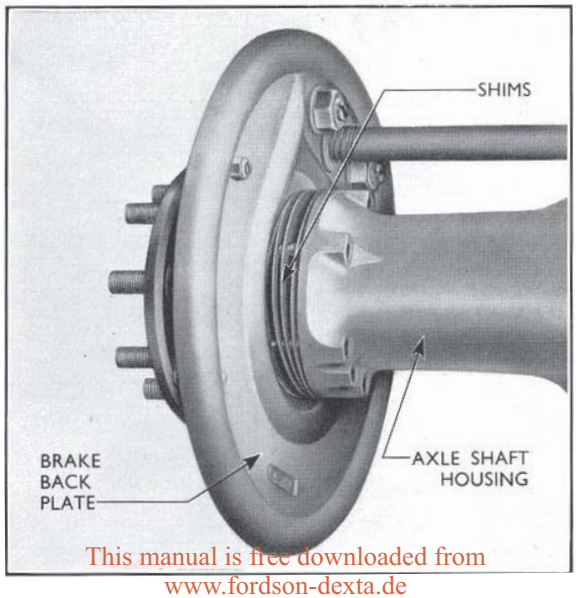

Fig. 10
Location of Axle Shaft Bearing Shims

If an early type Dexta is being handled where a collar is used to retain the bearing, heat the collar with a gas torch to a temperature of 700 to 800° F (371 to 427°C). Apply the flame evenly around the outside of the collar noting the temper colours on the inside face. When the colour becomes dark blue the temperature will be correct for assembly. Drop the collar over the end of the shaft, lip uppermost, and drive it into position using adaptor T.4069–1 on the remover tool as detailed in operation 4 and illustrated in Fig. 9.

6. Fit the brake back-plate and shoe assembly together with the brake camshaft and handbrake lever and tube assembly (if fitted) onto the bearing retainer studs.

7. An end-float of 0.004 to 0.012 in. (0.10 to 0.30 mm.) is specified for the axle shafts and this need only be measured at one side of the axle. It is essential, however, that when the end-float is being measured on one shaft (normally the left-hand side shaft) the opposite shaft and bearing retainer assembly is correctly installed, the retainer bolts tightened and the shaft held securely outwards so that the bearing cone is fully seated in its cup.

The adjustment for axle shaft end-float is provided by means of shims between each brake back-plate and the axle shaft housings (see Fig. 10). The shims

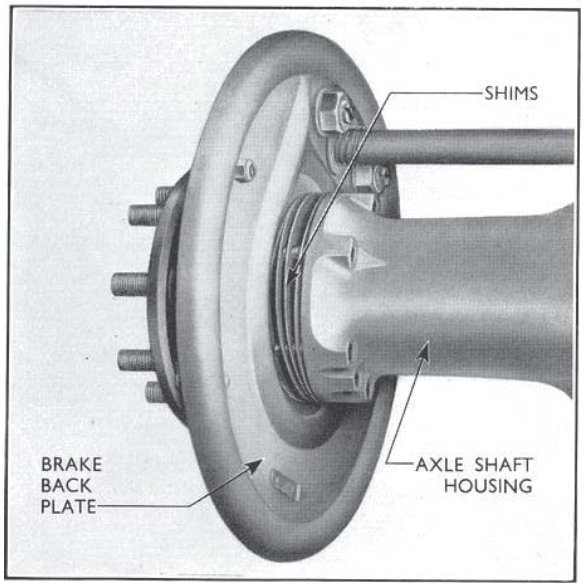

Fig. 11
Wedging an Axle Shaft Outwards Prior to Adjusting End-float

are available in thicknesses of 0.016, 0.021, 0.031, 0.050 and 0.057 in. (0.41, 0.53, 0.79, 1.27 and 1.45 mm.) and they should be divided equally between each side of the axle. If only one side has been dismantled it may be assumed that there will be approximately 0.060 in. (1.5 mm.) of shim thickness on the opposite side.

Fit a similar thickness of shim to the bearing retainer studs of the side being handled.

8. Pack the end of the axle shaft housing with grease and enter the axle shaft into the housing, carefully engaging the shaft with the differential side gear splines and at the same time locating the brake camshaft in its support bush. Fully assemble the shaft so that the bearing retainer studs locate in the corresponding holes in the axle shaft housing, fit nuts to four of the studs equally spaced around the bearing retainer and tighten to a torque of 40 to 45 lb. ft. (5.528 to 6.219 kg.m.).

9. Ensure that the opposite axle shaft and bearing retainer are securely installed and wedge the axle axle shaft outward (see Fig. 11). Turn the axle shaft flange through a small angle as the wedge is inserted to ensure that the bearing cone seats fully in its cup.

10. Insert a long $\frac{3}{8}$ in. 16 UNC bolt into one of the brake drum retainer screw holes of the shaft being replaced and screw it in until it just touches the bearing retainer. A locknut should be used, if necessary, to hold the screw steady.

If necessary, use a file to smooth down the bearing retainer at the point where it is contacted by the bolt. Ensure that the axle shaft is abutted firmly against the wedged shaft by tapping the end of the shaft flange with a mallet, moving the bolt in or out so that it just touches the bearing retainer.

11. Next pull the shaft firmly outwards and rotate the flange to seat the bearing in its cup and measure the clearance between the end of the bolt and the same point on the retainer (see Fig. 12). This gap, representing the axle shaft end-float should be 0.004 to 0.012 in. (0.10 to 0.30 mm.) and if outside these limits, the axle shaft should be removed and shims added to, or removed from, the retainer studs to increase or decrease the end-float respectively.

12. When the correct adjustment has been obtained fit the 10 nuts and spring washers on each retainer and tighten to a torque of 40 to 45 lb. ft. (5.528 to 6.219 kg.m.).

13. Where removed, replace the left-hand fender to the axle shaft housing and footplate and re-locate the rear lamp wiring conduit in the clips on the footplate and fender.

14. Reconnect the footbrake rod to the brake camshaft lever and the handbrake lever to the handbrake camshaft lever by inserting the clevis pins and split pins.

15. Refit the brake drum, securing in position with the countersunk screws.

16. Adjust the brake shoes and handbrake, and replace the wheel and wheel weights (if fitted) taking care not to damage the wheel stud threads. The wheel nuts should be tightened securely and re-checked after 50 working hours.

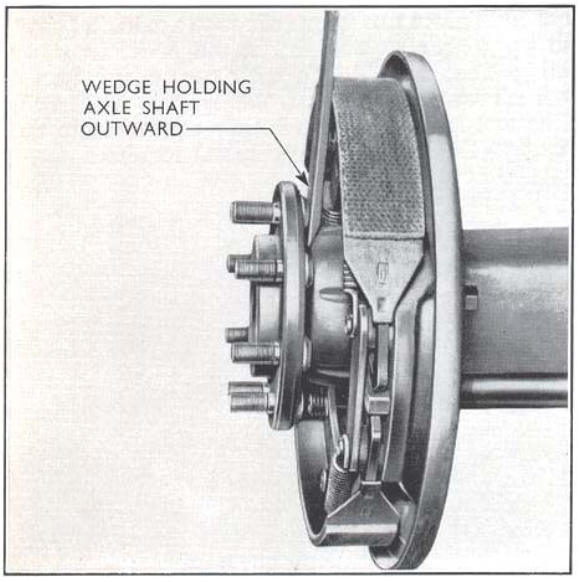

Fig. 12
Measuring Axle Shaft End-float

REAR AXLE SHAFT HOUSING OIL SEAL

1. Remove the rear axle shaft, brake shoe and back-plate, brake camshaft and handbrake lever and tube (where fitted) as an assembly—see operations 1 to 4 of section headed " Rear Axle Shafts, Bearings and Oil Seals—To Remove."

2. Lever out the old seal and fit a new seal, lip facing inwards, using adaptor T.4071 with the 550 Handle.

3. Refit the rear axle shaft, brake shoe and back-plate, brake camshaft and handbrake lever and tube (where fitted), as an assembly taking care to ensure that the same thickness of shim as was originally fitted, is placed between the brake back-plate and the axle shaft housing—see operations 13 to 16 of section headed " Rear Axle Shafts, Bearings and Oil Seals—To Reassemble."

AXLE SHAFT HOUSINGS

If both axle housings are to be removed during an overhaul the left-hand housing and the differential assembly should be removed first, and replaced only after the right-hand housing has been replaced.

It is possible to remove an axle shaft and housing as an assembly, providing means are available for supporting their combined weight.

To Remove an Axle Shaft Housing

1. Remove the two control panel side plates by unscrewing the four self-tapping screws in each and disconnect the rear lamp connections from the main loom. Release the wiring from the gearbox housing clips and pull the wiring through the holes in the housing flanges.

2. Remove the mudguard and foot plate as an assembly from the foot plate support brackets and the axle shaft housings.

3. Drain the oil from the rear transmission housing and remove the axle shaft complete with brake shoe assembly, brake camshaft and handbrake lever and tube assembly (where hand brake is fitted) as previously described.

4. Remove the split pin and castellated nut on the lower link pivot support pin and remove the lower link.

When removing the right-hand axle shaft housing disconnect the differential lock operating linkage and remove the pedal from the lower link pivot pin.

5. Unscrew the axle housing to transmission stud nuts and lift the axle shaft housing away from the studs.

6. Note that a number of gaskets are fitted between the left-hand axle shaft housing and the centre housing. These gaskets provide the adjustment for differential bearing pre-load and the same number should be used on reassembly. If new parts are fitted it may be necessary to reset the pre-load as detailed in sub-section headed " Differential Bearing Pre-Load."

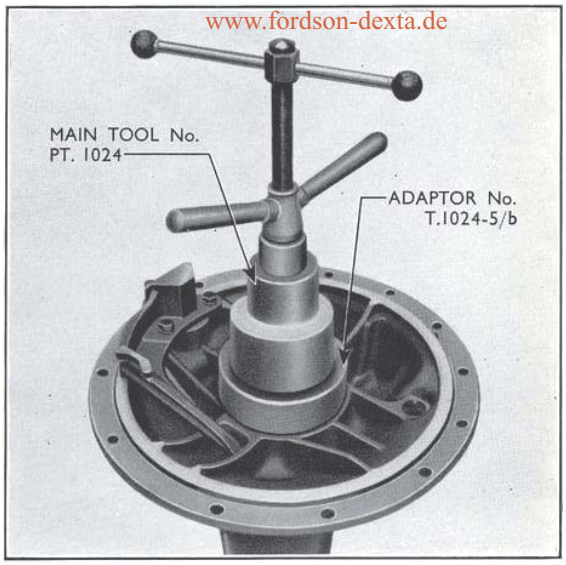

Fig. 13
Removing a Differential Bearing Cup

To Overhaul a Left-Hand Axle Shaft Housing

Prior to the introduction of the differential lock the differential bearings were identical on right- and left-hand sides of the tractor and the same procedure could be adopted for removing and replacing the bearing cup in the axle shaft housing. The right-hand bearing used when a differential lock is fitted, is however, larger than that previously used and different tools are required to effect removal.

1. To remove the left-hand differential bearing cup use Main Tool No. PT.1024 with adaptor ring T.1024–5/b and split adaptors T.1024–5/a. Engage the split adaptors with the bearing cup and the centre button on the tool shaft, and tighten the large wing nut to pull the cup from the housing (see Fig. 13).

2. The bearing cup may be replaced either by tapping into position or by using main Tool No. T.4055 with adaptors T.4055–1.

3. If it is necessary to renew the axle shaft housing oil seal, lever the old seal out of its location and fit the new seal, with the lip facing inwards, using adaptor T.4071 and the 550 handle.

To Overhaul a Right-Hand Axle Shaft Housing

If the tractor is not fitted with a differential lock the procedure is identical to that detailed above for a left-hand housing. If a differential lock is fitted adopt the following procedure :—

1. To remove the right-hand differential bearing cup from the housing use Tool No. T.4060 and adaptor Tool No. T.4060–5. Fit the adaptor T.4060–5 to the centre screw of the main Tool No. T.4060, tilt the tool at an angle and enter the remover

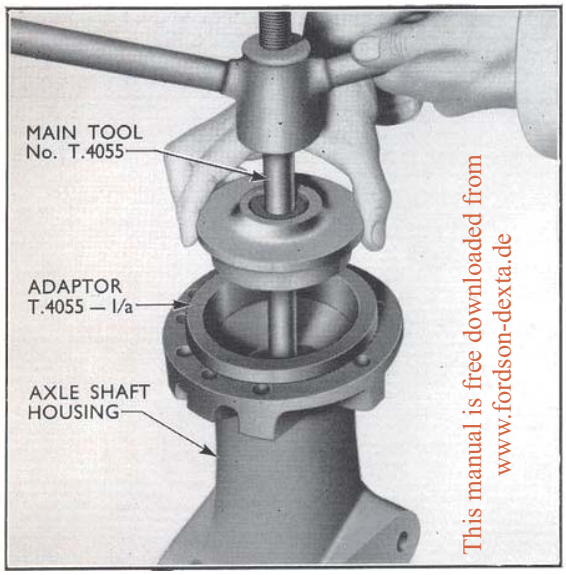

Fig. 14
Replacing a Differential Bearing Cup

adaptor behind the bearing cup. Straighten up the tool and turn the large wing nut to pull the cup from the housing.

2. A new cup can be fitted quite easily without special tools by tapping it into its location in the housing.

3. As with the left-hand housing a new axle shaft housing oil seal may be fitted, after levering out the old seal, using adaptor T.4071 with the 550 handle.

4. To overhaul the differential lock operating fork and cross-shaft or the cross-shaft oil seal :

(i) Release the differential lock operating fork to cross-shaft locknut and screw (see Fig. 15) and withdraw the cross-shaft from the housing at the same time sliding the operating fork from the shaft.

(ii) Knock out the cotter, securing the differential lock operating lever to the cross-shaft and slide off the operating lever.

(iii) If necessary, remove the cross-shaft oil seal from the axle shaft housing.

(iv) Replace the cross-shaft oil seal in the axle housing with the lip of the seal facing inwards.

(v) Position the differential lock operating lever on the cross-shaft and drive the cotter firmly into position.

(vi) Enter the cross-shaft in the housing at the same time sliding the fork into position on the shaft. Assemble the locking screw to the fork ensuring that the end of the locking screw enters the hole in the cross-shaft. Tighten both the locking screw and the locknut to a torque of 25 to 28 lb. ft. (3.46 to 3.87 kg.m.).

To Refit an Axle Shaft Housing

1. Position the axle shaft housing on the main transmission housing studs with the brake camshaft bush to the front and ensure, in the case of a right-hand housing, that the non-threaded portion of the differential lock adjusting screw has entered the slot in the operating fork. If the original axle shaft housing is being replaced use the same number of gaskets as were originally fitted. If a new housing is being fitted it will be necessary to select the thickness of gasket to obtain the correct differential bearing pre-load as detailed under heading " Differential Bearing Pre-load."

2. Fit the retaining nuts to the studs and tighten to a torque of 50 lb. ft. (6.91 kg.m.).

3. Refit the axle shaft assembly complete with brake shoes assembly, brake camshaft, handbrake lever and tube as previously described under heading " Rear Axle Shafts, Bearings and Oil Seals—To Re-assemble."

4. Replace the mudguard and foot plate assembly, locating the side lamp wiring between the inner edge of the foot plate and support brackets. Connect the side lamp wiring to the main loom and replace the control panel side plates.

5. Refit the lower link, screw on the castellated nut and retain with a split pin. When replacing the right-hand axle housing on a tractor fitted with a differential lock reconnect the differential lock linkage and replace the operating pedal on the lower link support.

6. Refill the rear transmission with 34 pints of lubricant of the correct grade (see " Rear Axle—Specifications ").

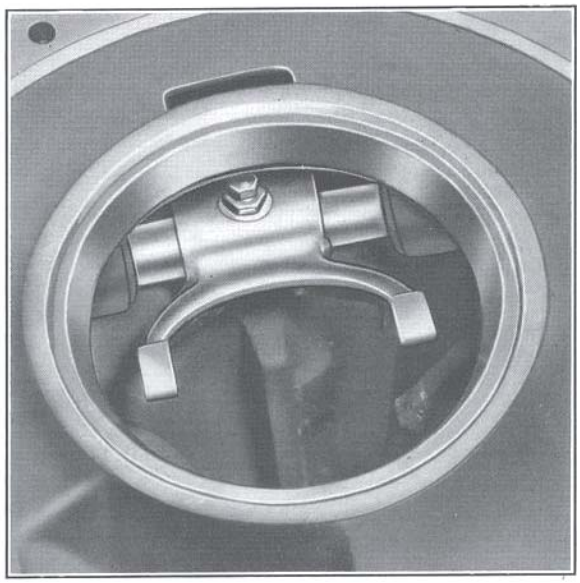

Fig. 15
Operating Shaft and Fork

DIFFERENTIAL AND DIFFERENTIAL LOCK

To Renew the Differential Lock Couplings

Access may be gained to the differential lock coupling adaptor, sliding coupling and spring by removing the right-hand axle shaft housing (see Fig. 16). To completely overhaul the differential case assembly it will, however, be necessary to remove the left-hand axle shaft housing in order to withdraw the complete assembly from the transmission housing, see " To Remove the Crown Wheel, Differential and Differential Lock Assembly."

If the differential couplings require attention proceed as follows :—

1. Remove the right-hand axle shaft housing as previously described.

2. Remove the circlip retaining the sliding coupling to the right-hand side gear and remove the thrust washer, return spring, and coupling adaptor (see Fig. 17).

3. Replace the differential lock coupling adaptor, return spring, sliding coupling and thrust washer and retain in position on the right-hand side gear with the appropriate circlip.

4. Reassemble the right-hand axle shaft housing as previously described.

Fig. 16
Differential Lock Coupling Assembly

To Remove the Crown Wheel, Differential and Differential Lock Assembly

1. Jack up the tractor and drain the oil from the rear transmission housing.

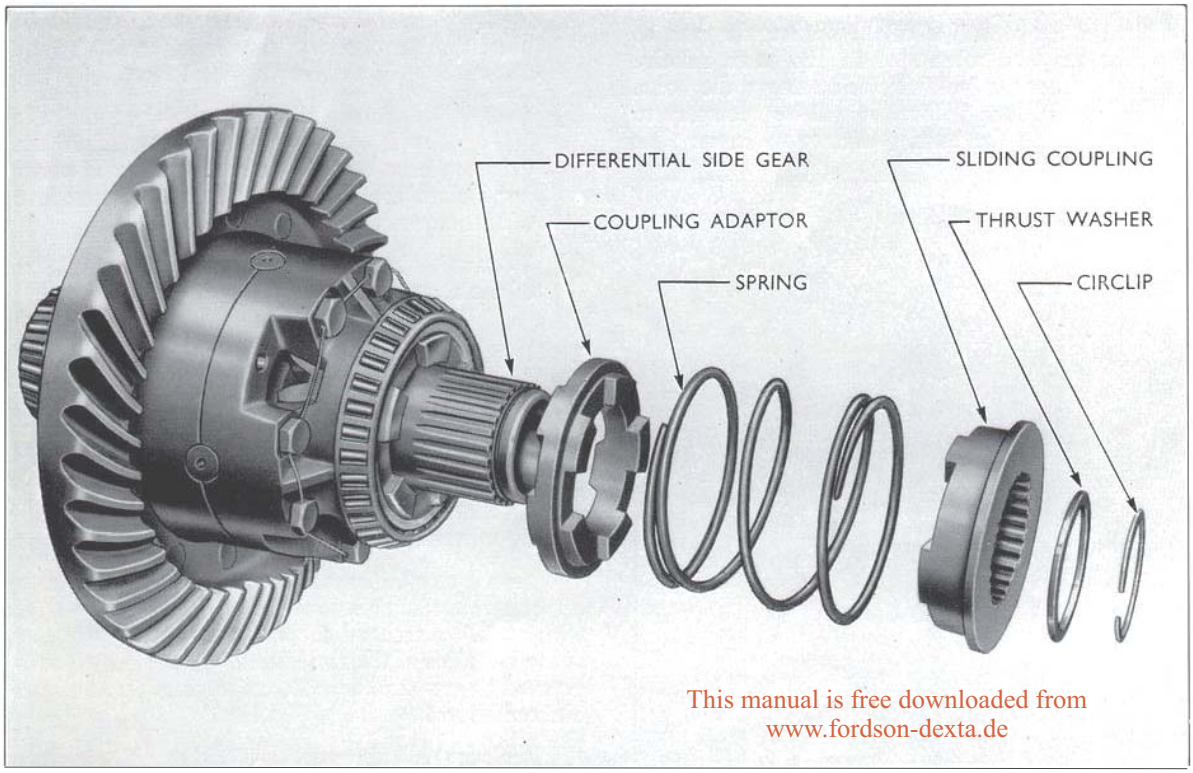

Fig. 17
Exploded View of the Differential Lock

2. Remove the left-hand rear wheel and wheel weights where fitted.

3. Disconnect the rear lamp wiring conduit from the retaining clips on the fender and footplate, unscrew the three bolts securing the fender to the footplate and the two bolts securing the fender to the rear axle housing. Swing the fender to one side, taking care not to place undue strain on the rear lamp wiring.

4. Disconnect the left-hand foot brake rod from the brake camshaft lever.

5. Where a handbrake is fitted, disconnect the left-hand handbrake rod from the handbrake lever and tube assembly.

6. Remove the hydraulic lift left-hand lower link.

7. Remove the left-hand axle shaft housing to transmission housing nuts and remove the axle shaft housing, axle shaft, brake and handbrake (where fitted) as an assembly. Note the number of gaskets fitted between the axle shaft housing and the transmission housing so that the same thickness may be used on reassembly.

8. Carefully withdraw the crown wheel and differential assembly.

To Dismantle

1. If a differential lock is fitted, remove the circlip retaining the sliding coupling to the right-hand side gear. Remove the thrust washer, sliding coupling, coupling return spring and coupling adaptor (see Fig. 17).

2. Mark the two halves of the differential case so that they may be assembled in the same relative position, extract the lock wire and remove the bolts. If a differential lock is fitted it will be necessary to gradually release the bolts whilst at the same time lifting the right-hand half of the case. The bearing cone will prevent individual bolts from being removed.

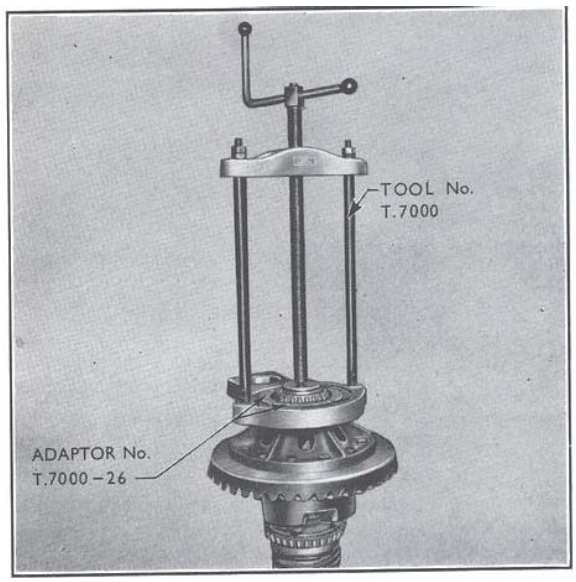

Fig. 18
Removing a Differential Bearing Cone

3. Remove the right-hand half of the case away from the rest of the assembly.

4. If it is necessary to remove the right-hand bearing cone on tractors fitted with a differential lock, existing Tool No. T.4056 and thrust pad T.4056/c will be suitable.

The left-hand bearing cone on all Dexta tractors and the right-hand cone on tractors without differential lock may be removed with Main Tool No. T.7000 and split adaptors T.7000–26.

If a bearing cone is renewed it is recommended that a new bearing cup of a corresponding manufacturing type is also fitted.

5. Remove the differential spider, pinions, side gears and thrust washer.

6. If necessary, remove the bushes from the differential case, using a suitable drift.

7. If a new differential case and/or crown wheel are to be fitted, remove the rivets retaining the crown wheel to the left-hand half of the differential case in the following manner :—

(*a*) Centre punch the upset end of each of the twelve retaining rivets, i.e. the end on the gear side of the crown wheel.

NOTE.—To ensure that the drill runs true to the rivet shank the centre punch should be placed in the centre of the circle formed by the counterbore in the crown wheel face.

(*b*) Drill $\frac{9}{16}$ in. diameter holes in the rivet until the end breaks free from the rivet shank. If the drill has been centred correctly, this will occur just before the drill reaches the hardened face of the crown wheel.

(*c*) Use a suitable size drift to remove the remainder of the rivet.

To Rebuild

The crown wheel and pinion are supplied through service as a matched assembly and no attempt should be made to renew one without the other.

Although the crown wheel is rivetted to the differential case in production, special bolts and self-locking nuts are available for service.

Where a new differential case is to be fitted to a Super Dexta tractor it must be of the latest type, i.e. with a shallow recess machined around the periphery at the joint line of the two halves. This case may also be used on standard type Dexta tractors fitted with a differential lock.

1. Replace the differential case bushes. These must be inserted from the inside of the differential case and located at a depth of 0.60 in. (1.53 mm.) from the inside face.

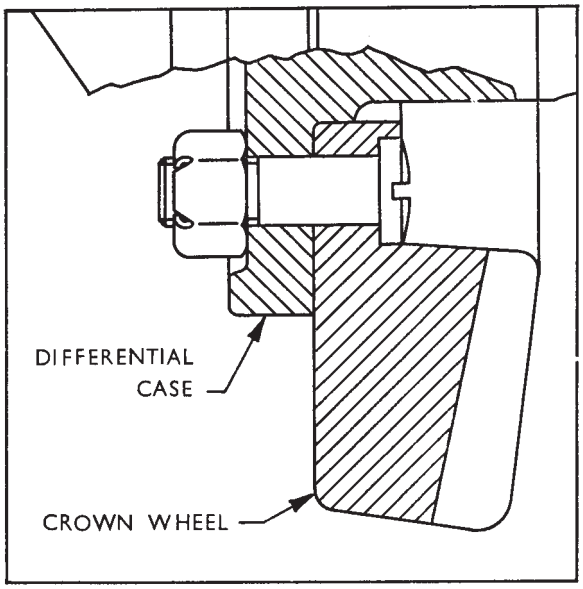

Fig. 19
Crown Wheel to Differential Case Securing

On tractors less differential lock, both left- and right-hand bushes may be assembled to the correct depth with Tool No. T.4073 and the 550 handle.

On tractors with differential lock, use Tool No. T.4073 and 550 handle to assemble the left-hand bush and Tool No. T.4087 with 550 handle to fit the right-hand bush.

2. If a new crown wheel and/or differential case is to be fitted, thoroughly clean the mating surfaces and ensure that the faces are free from burrs. Assemble the crown wheel to the left-hand half of the differential case using special bolts and locknuts as shown in Fig. 19. It will be noted that the slotted heads of the bolts locate in the counterbores of the holes in the gear side of the crown wheel. Tighten the locknuts to a torque of 50 to 60 lb. ft. (6.9 to 8.3 kg.m.).

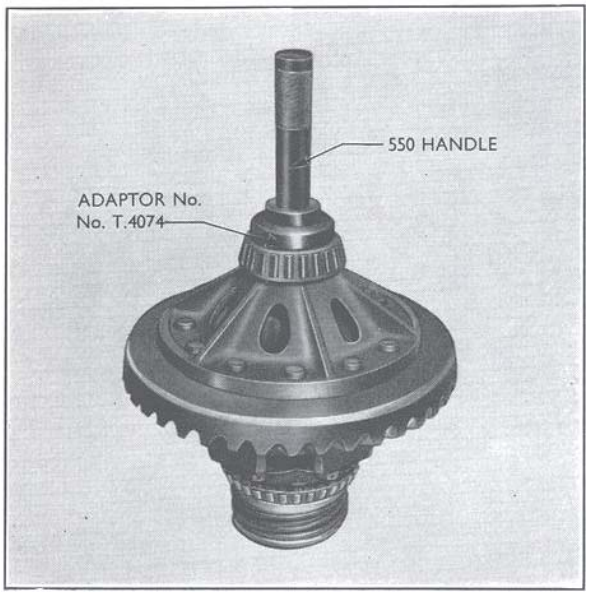

Fig. 20
Replacing a Differential Bearing Cone

3. Insert the eight retaining bolts in the holes in the right-hand half of the differential case then assemble the right-hand bearing cone.

Use Tool No. T.4074 with 550 handle for assembling the bearing cone on tractors less differential lock and Tool No. T.4088 with 550 handle on tractors with differential lock.

4. Assemble the left-hand bearing cone using Tool No. T.4074 with 550 handle.

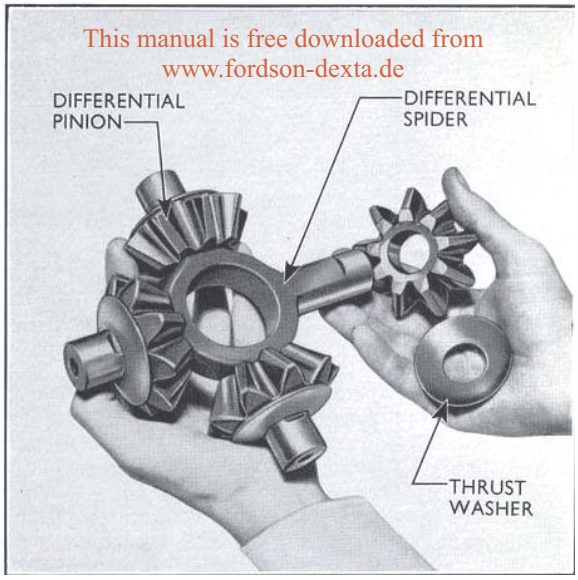

Fig. 21
Assembling the Differential Spider and Pinions

5. Place the left-hand half of the casing on the bench and install a side gear thrust washer and left-hand side gear. Assemble the pinions to the spider and locate in the left-hand differential case.

Locate the right-hand side gear and thrust washer on top of the assembly.

(NOTE.—The side gear used with a differential lock differs from that used when no differential lock is fitted.)

Lower the right-hand half of the differential case over the right-hand side gear and line up the mating marks, placed on left- and right-hand halves of the case before dismantling.

6. Tighten the retaining bolts to a torque of 70 lb. ft. (9.67 kg.m.). On assemblies with a differential lock a special adaptor, Tool No. T.4091,

Fig. 22
The Differential Assembly

is available to enable a torque wrench to be used. When using this adaptor, set the torque wrench to 62 lb. ft. (8.5 kg.m.) as this setting will be multiplied by the adaptor to give the specified 70 lb. ft. (9.67 kg.m.) at the bolt.

Lubricate the assembly and turn the gears to check freedom of movement. Lock the heads of the bolts with wire.

7. Replace the differential lock coupling adaptor, return spring, sliding coupling and thrust washer, and retain with the appropriate circlip.

To Refit the Crown Wheel, Differential and Differential Lock Assembly

1. Refit the assembly in the housing taking care to engage with the right-hand axle shaft splines.

2. Fit the axle shaft housing, axle shaft, and brake as an assembly to the rear transmission housing. If the differential casing and/or bearings have not been renewed, use the same number of gaskets as were originally used. If, however, a new differential casing or new bearings have been fitted it will be necessary to reset the bearing pre-load as outlined on page 16 under the heading " Differential Bearing Pre-Load."

3. Replace the hydraulic lift lower link.

4. Where a handbrake is fitted, reconnect the left-hand handbrake rod to the handbrake lever and tube assembly.

5. Reconnect the left-hand footbrake rod to the brake camshaft lever.

6. Replace the fender to the axle shaft housing and footplate and re-locate the rear lamp wiring conduit in the clips on the footplate and fender.

7. Replace the left-hand wheel.

8. Remove the jack and refill the rear transmission housing to the level plug hole with the correct grade of oil.

THE DRIVE PINION

The drive pinions used on both the Super Dexta and the standard type Dexta have six teeth but the pinions differ in tooth form, number of splines and size of thread. The taper roller bearings fitted to current production models are wider than those fitted prior to the introduction of the Super Dexta although they are used with the same bearing retainer housing and may therefore be fitted in service to early Fordson Dexta tractors. The early bearings must not be fitted to a Super Dexta.

It should also be noted that the pinion pilot bearing fitted to a Super Dexta is wider and has a larger internal diameter than that used on the standard type Dexta.

To Remove the Drive Pinion and Bearing Retainer Assembly

The drive pinion assembly cannot be removed with the differential in position as the crown wheel teeth prevent the pilot bearing from passing. It should also be noted that crown wheels and pinions are supplied as matched assemblies and one should not be renewed without the other.

1. Split the tractor at the rear transmission centre housing/gearbox flange as previously described.

Fig. 23
Withdraw the Drive Pinion Assembly

2. Remove the left-hand axle shaft housing assembly followed by the differential assembly—see " To Remove the Crown Wheel Differential and Differential Lock Assembly."

3. Remove the hydraulic lift top cover assembly, hydraulic pump and hydraulic lift oil return filter.

4. Remove the driving pinion coupling then extract the bolts holding the pinion bearing retainer assembly to the rear transmission housing.

No special equipment will normally be necessary to draw the pinion bearing retainer assembly from the transmission housing but should a tight assembly be encountered which will not respond to gentle tapping, adaptors are available for use with existing main Tool No. CT.4014 to carry out this operation.

When using the tool on a standard type Dexta, adaptors CT.4014–1 will be required whilst on the Super Dexta, CT.4014–1 plus an alternative sleeve T.4014–5 will be necessary.

To use the tool refer to Fig. 23 and proceed as follows :—

(*a*) Straighten the tabs of the drive pinion lockwasher and remove the locknut and lockwasher. A pair of spanners to fit the standard type Dexta locknut and bearing adjusting nut is available under Tool No. CT.4050 and a similar pair to suit the Super Dexta under Tool No. T.4094.

(*b*) Locate the three tool adaptor studs CT.4014–1/c through equally spaced holes in the pinion bearing retainer flange and screw them into the threaded holes in the rear transmission housing.

(*c*) Fit the circular platform of adaptor set CT.4014–1 onto the studs.

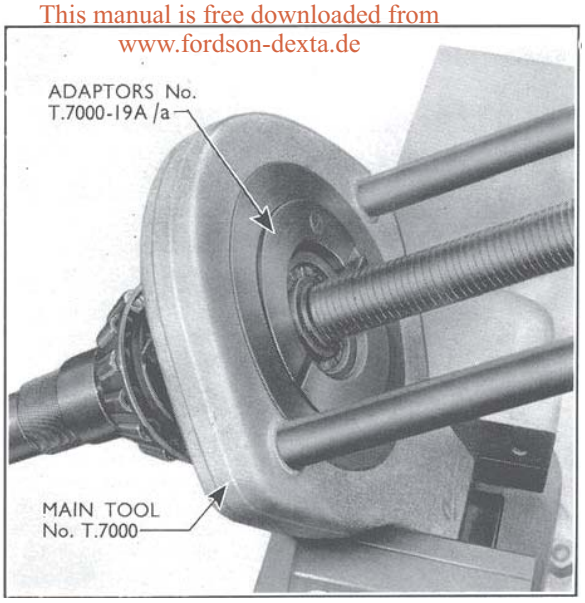

Fig. 24
Removing the Pinion Pilot Bearing

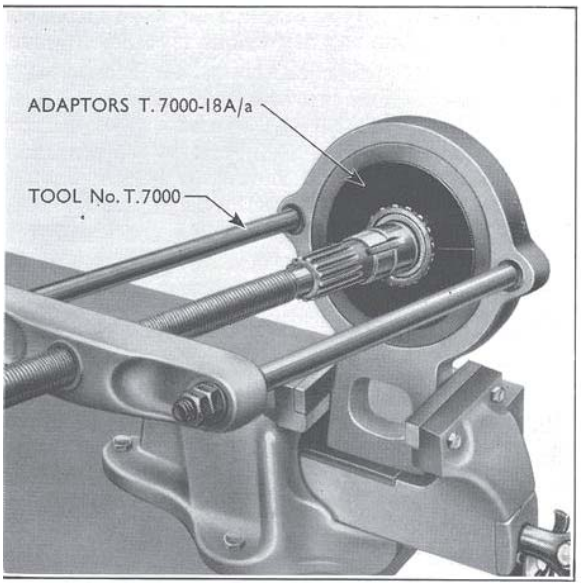

Fig. 25
Removing the Pinion Rear Bearing Cone

(*d*) Screw the threaded sleeve, Tool No. T.4014–1/a on a standard type Dexta or Tool No. T.4014–5 on a Super Dexta, onto the pinion then locate the body of the Main Tool No. CT.4014 on the circular platform.

(*e*) Fit the centre screw of the tool to the sleeve and then tighten the wing nut to withdraw the pinion and bearing retainer assembly from the housing.

To Overhaul the Drive Pinion and Bearing Retainer Assembly

1. If the drive pinion and bearing retainer has been removed complete without the use of special tools, straighten the lockwasher tabs and remove the locknut and lockwasher.

2. Remove the bearing adjusting nut and thrust washer and withdraw the pinion, rear bearing cone and pilot bearing assembly from the bearing retainer. Remove the front bearing cone.

3. To renew the drive pinion pilot bearing, first detach the locking ring, located in a groove in the pinion at the rear of the bearing, then use main Tool No. T.7000 with slave ring and split adaptors Tool No. T.7000–19A/a, to withdraw the bearing from the pinion. Fit a new bearing using the same adaptors with the addition of plate T.7000–19A/b, and retain on the pinion with a new locking ring which must be closed after locating in the pinion groove.

4. The rear bearing cone may be removed, using Main Tool No. T.7000 with adaptor T.7000–18A/a. To fit a new cone use Main Tool No. T.7000 and adaptors T.7000–18A/a with the addition of adaptor ring T.7000–18A/b to locate the bearing inner race.

NOTE.—Early type adaptors T.7000–18/a are only suitable for removing a previous type bearing cone.

5. To renew either of the pinion bearing cups, remove the original cup with main Tool No. T.4060, adaptor ring T.4060–3A/a and split adaptors T.4060–3A/b (see Fig. 26). Reverse the position of the adaptors and fit the new cup, tightening the large wing nut of the main tool to pull the cup into position.

6. Fit the pinion, rear bearing cone and pilot bearing assembly in the bearing retainer and cup assembly. Install the front bearing cone, thrust washer, bearing adjusting nut, lockwasher and locknut.

7. Tighten the inner nut to pre-load the bearings to 12 to 16 lb. ins. (0.138 to 0.184 kg.m.). Use Tool No. T.4062 with adaptor T.4062–1 to check the pre-load when adjusting the bearings on a standard type Dexta and with adaptor T.4062–2 when checking the bearing pre-load on a Super Dexta.

When making the adjustment tap the splined end of the shaft lightly with a soft mallet and rotate the shaft to seat the bearings in their cups.

8. Tighten the locknut then re-check the bearing pre-load, making further adjustments if necessary. Bend one of the tabs of the lockwasher onto a flat on the adjusting nut and the other tab onto a flat of the locknut.

To Refit the Drive Pinion

1. Fit the pinion and bearing retainer assembly to the rear transmission housing. Where available, the adaptor studs of the removing tool may be used to guide the assembly into position.

2. Ensure that the dowel in the retainer enters the dowel hole in the housing then fit and fully tighten the six bolts and spring washers to secure the bearing retainer.

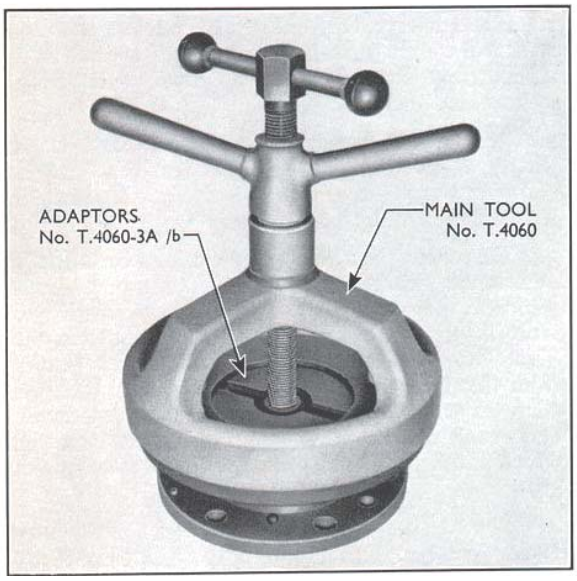

Fig. 26
Removing the Pinion Bearing Cup

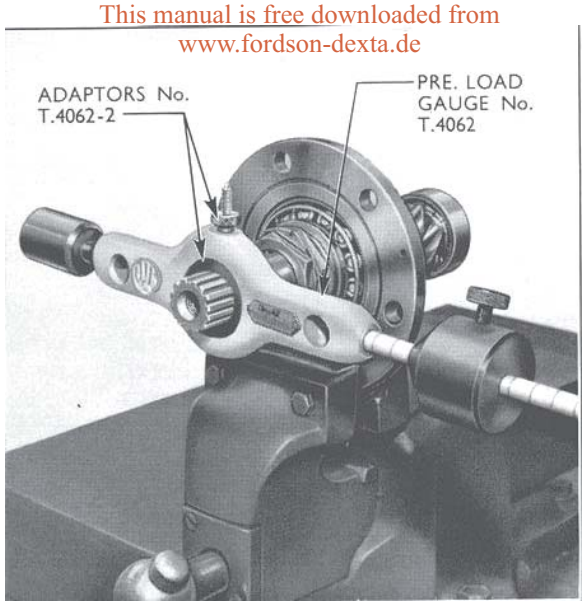

Fig. 27
Checking the Pinion Bearing Pre-load

3. Replace the differential assembly and the left-hand axle shaft housing including the fender and rear wheel—see "To Refit the Crown Wheel, Differential and Differential Lock Assembly."

4. Fit the pinion coupling, the hydraulic lift oil return filter and hydraulic pump.

5. Join the rear transmission to the gearbox as previously described under "To Reassemble the Rear Transmission to the Gearbox."

6. Replace the hydraulic lift top cover assembly and refill the rear transmission to the level plug hole with new lubricant of the correct grade.

DIFFERENTIAL BEARING PRE-LOAD

The number, and consequently the thickness, of gaskets fitted between the left-hand axle shaft housing and the main rear transmission housing determines the pre-load on the differential bearings.

To ensure that this pre-load is maintained the number of gaskets should be noted whenever an axle housing is removed and the same number used on reassembly.

If, however, a major overhaul is being carried out involving renewal of the differential housing, bearings or axle shaft housing it will be necessary to reset the bearing pre-load in the following manner :—

1. Fit a new gasket to the studs on the right-hand side of the main rear transmission housing. If a differential lock is fitted, ensure that the non-threaded portion of the differential lock adjusting screw has entered the slot in the operating fork then assemble the right-hand axle shaft housing to the

main rear transmission housing. Rotate the rear transmission housing until the right-hand axle shaft is pointing downward.

2. Locate the differential assembly in the cup of the right-hand axle shaft housing.

3. Position the left-hand side axle shaft housing correctly over the differential assembly and rotate the differential by hand to ensure that the bearing cones seat correctly.

4. Fit nuts to four studs positioned equally around the housing and screw down finger-tight.

5. With feeler gauges measure the gap between the axle housing ensuring that it is equal at all points around the circumference. Do not tighten the nuts beyond finger tightness.

6. Select a number of gaskets the compressed thickness of which will be equal to the gap measured. Each gasket supplied in service has a compressed thickness of 0.0065 in. (uncompressed thickness—0.009 to 0.012 in.).

7. Having determined the correct number of gaskets, remove the left-hand axle shaft housing and differential assembly and rebuild the axle as described under the appropriate heading.

NOTE.—Setting the differential bearing pre-load by the above method will ensure that the pre-load does not exceed 30 lb. ins. (0.345 kg.m.) at which loading the differential can be turned easily by hand.

Even if during an overhaul no parts are renewed which could directly affect the pre-load, it is advisable always to check on reassembly that the crown wheel can be turned easily by hand and is without perceptible side-float.

As an alternative method during overhaul the pre-load can be measured directly on the differential casing by means of a spring balance and a length of cord wound around the differential casing. Access to the differential may be gained through the P.T.O. aperture and the drive pinion should be removed before measurement to eliminate additional drag.

The maximum pre-load allowable would then be equivalent to a pull of 8½ lb. (3.76 kg.) on the spring balance. If gaskets are removed one at a time and the pre-load re-measured, then all the housing nuts should be tightened for each measurement, as the gaskets will then be compressed the correct amount.

POWER TAKE-OFF

The arrangement of the Power Take-Off and the method of engaging the drive is the same on all tractors with or without "Live" P.T.O. The shaft runs the full length of the rear transmission housing and emerges at the centre line of the tractor, the shaft being 1⅜ in. (34.9 mm.) diameter and having six splines. The shaft is supported at its rear end by a ball bearing and at its mid-length by a bronze bush in the housing.

At the front end a dog tooth gear and sleeve is splined to the shaft. When the P.T.O. shifter lever is pulled rearwards a cranked shaft and fork are moved forwards to slide the sleeve and gear into mesh with the internal dog teeth on the hydraulic pump drive gear at the rear of the P.T.O. counter shaft. Positive engagement is ensured by a spring-loaded ball locating in a recess in the shifter housing.

To Remove the P.T.O. Shaft Assembly

1. Drain off the rear axle oil. If the rear end of the tractor can be conveniently raised or the front

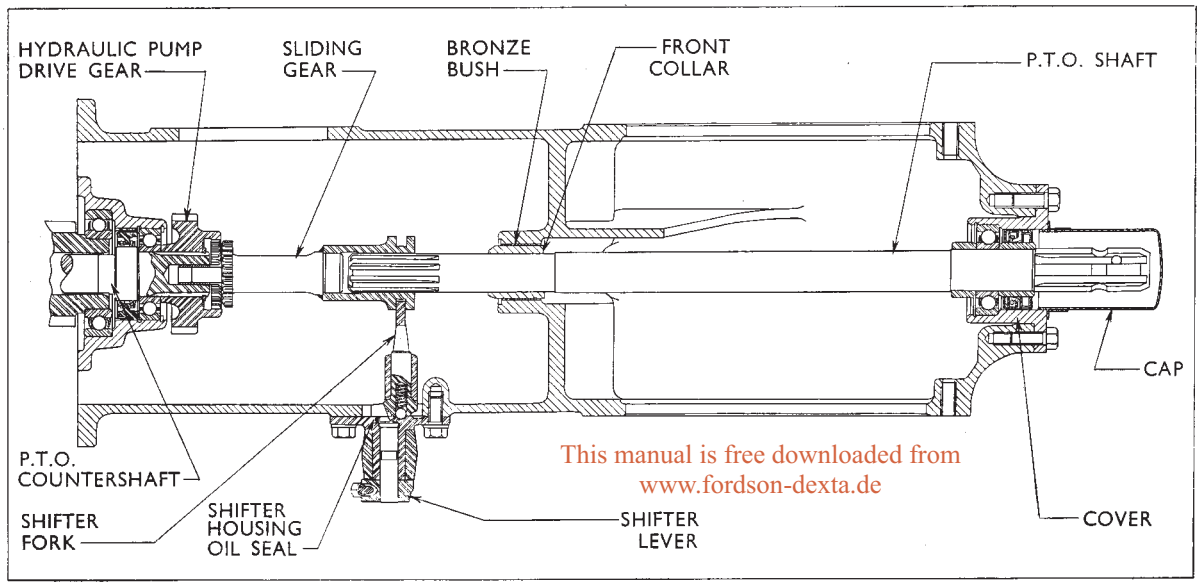

Fig. 28
Sectioned Lay-out of the Power Take-Off

end lowered, then it will only be necessary to drain off a small quantity of oil.

2. Move the P.T.O. shifter lever rearward to the engaged position.

3. Remove the belt pulley and pulley guard (if fitted).

4. Unscrew the four P.T.O. shaft cover bolts and remove the P.T.O. cap and/or guard (if fitted). The P.T.O. cover and shaft may then be withdrawn as an assembly from the rear axle housing.

To Replace the P.T.O. Shaft

1. Ensure that the shaft is clean and that the splines at the front end are free from burrs. Fit a new gasket over the P.T.O. cover.

2. Install the shaft in the axle housing passing the end carefully through the bronze bush in the housing and engage the splines with the sliding gear.

3. Replace the rear cover bolts and fit the P.T.O. cap and/or guard or the belt pulley and guard as necessary.

TO RENEW THE P.T.O. OIL SEAL

1. Remove the P.T.O. shaft as detailed above.

2. Using a pair of circlip pliers remove the circlip retaining the P.T.O. bearing in the cover.

3. Tap the rear end of the shaft, using a mallet, to remove the shaft and bearing assembly from the cover.

4. Drive the seal out of its location in the cover.

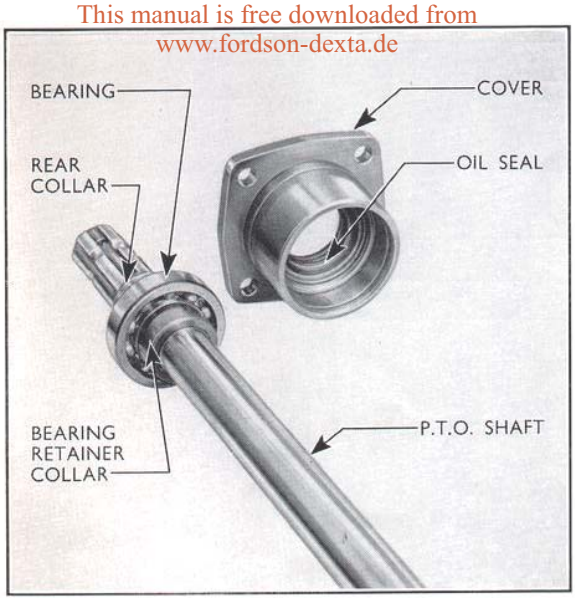

Fig. 29
P.T.O. Shaft and Cover

5. Use the adaptor No. T.7080 with the 550 handle to drive the new seal into the cover. With the cover placed flange downwards on the bench, position the seal so that the lip faces upwards (i.e. will face forwards when installed in the tractor). The use of the correct tool will ensure that the seal is positioned at the correct depth in the cover i.e. 0.12 in. (3.05 mm.) below the bearing locating shoulder.

6. Fit the tapered adaptor sleeve T.7081 over the rear end of the shaft and tap the shaft and bearing assembly into the cover. The use of the special tool will ensure that the lip of the oil seal is not damaged by the edge of the collar. Fit the bearing retaining circlip in the groove in the housing.

7. Install the P.T.O. shaft into the rear transmission housing as previously described.

TO RENEW THE P.T.O. SHAFT BEARING

To Dismantle

1. Remove the P.T.O. shaft as described on page 17.

2. Remove the circlip retaining the P.T.O. bearing in the cover and detach the cover (see Fig. 29).

3. Remove the shaft front collar. This collar runs in a bronze bush in the transmission housing and is a press fit on the shaft. To remove, suitably support the rear edge of the collar and press or drive the shaft through it. Take care not to burr the splines at the front end of the shaft.

4. Remove the bearing retainer collar. This collar is a shrink fit on the shaft and should be cracked by means of a chisel before removal.

5. Suitably support the bearing and press or drive the front end of the shaft through the bearing.

6. The rear collar on the shaft provides a bearing surface for the P.T.O. oil seal and should be renewed if worn or scored. It is a press fit and may be pressed or driven forwards off the shaft.

To Reassemble

1. Press the rear oil seal collar onto the shaft so that it contacts the ends of the P.T.O. splines.

2. Press the P.T.O. bearing onto the shaft, applying pressure to the inner race only, until it is in firm contact with the oil seal collar.

3. Heat the bearing retainer collar, applying the flame evenly until it reaches a dark blue temper colour. Drop it over the front end of the shaft and tap firmly home against the bearing.

4. Fit the front collar onto the shaft, with the chamfered outside edge facing forwards and press into position. This collar should be located with its rear edge 13.4 in. (340.4 mm.) from the front edge of the bearing retainer collar.

5. Replace the shaft and bearing assembly in the cover, retain with a circlip, and install in the rear transmission housing as previously described.

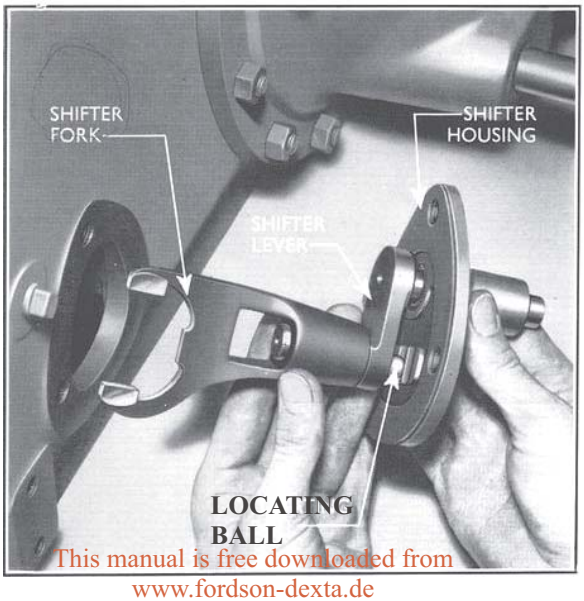

Fig. 30

P.T.O. Selector

P.T.O. SHIFTER

To Remove

1. Remove the bolts securing the left-hand side foot plate to the mudguard and to the support brackets. Release the side lamp wiring clip at the rear of the foot plate, and remove the foot plate from the tractor.

2. Unscrew the rear axle drain plug and drain off approximately half of the axle oil.

3. Disconnect the clutch rod from the clutch pedal lever.

4. Move the P.T.O. shifter forward to the disengaged position.

5. Unscrew the three shifter housing securing bolts and remove the assembly from the transmission housing. Note that the front lower bolt is also used to retain the clutch pedal stop bracket (except on tractors with " Live " P.T.O.).

To Dismantle

1. Slide the shifter fork off the cranked end of the shaft (see Fig. 30).

2. Unscrew the nut on the shifter lever cotter bolt, drive out the cotter and remove the shifter lever. The clutch pedal may then be removed. Once the shifter lever has been released from the shaft the spring-loaded locating ball will tend to drop and care should be taken not to lose this.

To Reassemble

1. Clean and inspect all parts and renew as necessary, ensure that the shaft and the shifter housing joint face are free from burrs.

2. Prior to Tractor Serial No. 47875 a lip type of seal was fitted between the shifter shaft and the shifter shaft housing. After this number an " O " ring was fitted instead of the lip type seal and the shifter shaft housing modified to suit. The current type seal and housing are not individually interchangeable with those previously fitted. To renew the early lip type oil seal, lever the old oil seal out of its location and fit the new seal with the lip facing outwards (i.e. towards centre of tractor); press on the outer diameter of the seal and ensure that it enters squarely into the bore and abuts the locating shoulder.

3. Grease the shaft and slide it into the shifter housing taking care not to damage the oil seal.

4. Fit the locating ball spring into its bore in the shaft and install the locating ball to engage with the centre of the three grooves in the P.T.O. housing. Apply a light pressure to the shaft and housing to hold the ball in position. To prevent the ball dropping out of its location the clutch pedal and shifter lever should be installed at this stage and secured by means of the cotter bolt and nut. If, during a major overhaul, the hydraulic lift cover is removed, the shifter housing may be installed without the lever and clutch pedal, there being no danger of losing the locating ball.

5. Install the shifter fork on its shaft with the forked end offset downwards.

To Refit

1. Fit a new gasket to the joint face and install the housing, ensuring that the shifter fork engages correctly with the recess in the sliding gear. Fit and tighten the three shifter housing bolts. On tractors not fitted with " Live " P.T.O. the clutch pedal stop bracket should be fitted under the front lower bolt and positioned so as to contact the upper edge of the raised boss on the housing.

2. Fit the clutch pedal and shifter lever if not previously installed, replace the cotter bolt and tighten the nut securely.

3. Operate the shifter lever to ensure correct engagement and disengagement of the sliding gear.

4. Reconnect the clutch operating rod, securing the clevis pin with a new split pin.

5. Bolt the foot plate in position to the support brackets and the mudguard, and secure the side lamp wire in the clip at the rear of the foot plate. Also locate the wiring to run between the support brackets and the inner edge of the foot plate.

6. Refill the rear transmission with oil to the correct level.

P.T.O. SLIDING GEAR

The P.T.O. sliding gear is supported at its front end by a bush in the rear of the P.T.O. countershaft, and at the rear on the splined front end of the P.T.O. shaft. The gear can be moved into and out of engagement with the internal dog teeth on the hydraulic

pump drive gear by operating the P.T.O. shifter lever.

To remove the P.T.O. sliding gear it is necessary to split the tractor at the rear transmission/gearbox flange—see section headed " To Separate the Rear Transmission from the Gearbox "—and to remove the P.T.O. shifter assembly.

The P.T.O. sliding gear may then be withdrawn from the P.T.O. shaft.

P.T.O. SHAFT FRONT BUSH

This steel backed, bronze lined bush supports the front end of the P.T.O. shaft and is a press fit in the centre axle housing.

If a new bush is fitted it should be pressed into the bore from the front of the housing, to a depth of 0.22 in. (5.6 mm.), measured from the front of the boss.

REAR AXLE — SPECIFICATIONS

	STANDARD TYPE DEXTA	SUPER DEXTA
Type	Semi-floating	Semi-floating
Axle ratio	6.66 : 1	6.16 : 1
THE DRIVE PINION		
Number of teeth	6	6
Number of splines	10	14
Pinion bearing pre-load	12.16 lb. in. (0.1401 kg.m.)	12.16 lb. in. (0.1401 kg.m.)
Pinion shaft diameter :		
at pilot bearing locations	0.9845 to 0.9850 in. (25.006 to 25.019 mm.)	1.1811 to 1.1816 in. (30.000 to 30.013 mm.)
at centre bearing locations	1.751 to 1.752 in. (44.476 to 44.501 mm.)	1.751 to 1.752 in. (44.476 to 44.501 mm.)
at front bearing locations	1.749 to 1.7495 in. (44.425 to 44.437 mm.)	1.749 to 1.7495 in. (44.425 to 44.437 mm.)
REAR AXLE SHAFTS		
Shaft diameter :		
at outer oil seal location	3.124 to 3.126 in. (79.350 to 79.401 mm.)	3.124 to 3.126 in. (79.350 to 79.401 mm.)
at inner oil seal location	2.124 to 2.126 in. (53.950 to 54.001 mm.)	2.124 to 2.126 in. (53.950 to 54.001 mm.)
at bearing location	2.2515 to 2.2525 in. (57.188 to 57.214 mm.)	2.2515 to 2.2525 in. (57.188 to 57.214 mm.)
*at retaining collar location	2.2515 to 2.2525 in. (57.188 to 57.214 mm.)	NOT APPLICABLE
*Bearing retaining collar I.D.	2.2445 to 2.2465 in. (57.011 to 57.061 mm.)	NOT APPLICABLE
Bearing retainer securing :	by nut/*by collar	by nut
Rear axle shaft end-float	0.004 to 0.012 in. (0.102 to 0.305 mm.)	0.004 to 0.012 in. (0.102 to 0.305 mm.)
Adjustment	By shimming the axle shaft retainers at both sides of axle	
Shims available	0.016, 0.021, 0.031, 0.050, 0.057 in. (all shims ±0.001 in.) (0.406, 0.533, 0.787, 1.270, 1.448 mm. (all shims ±0.025 mm.)	

** Applicable to tractors produced before the introduction of the Super Dexta*

REAR AXLE—SPECIFICATIONS (*continued*)

	STANDARD TYPE DEXTA	SUPER DEXTA
THE DIFFERENTIAL		
Differential spider journal diameter	0.9965 to 0.998 in. (25.273 to 25.349 mm.)	0.9965 to 0.998 in. (25.273 to 25.349 mm.)
Differential pinion bush bore	1.000 to 1.001 in. (25.400 to 25.426 mm.)	1.000 to 1.001 in. (25.400 to 25.426 mm.)
Differential casing bush bore L.H.	2.3735 to 2.3775 in. (60.287 to 60.389 mm.)	2.3735 to 2.3775 in. (60.287 to 60.389 mm.)
Differential casing bush bore R.H.	2.838 to 2.842 in. (72.085 to 72.187 mm.)	2.838 to 2.842 in. (72.085 to 72.187 mm.)
Differential casing bush bore	‡2.3735 to 2.3775 in. (60.287 to 60.389 mm.)	NOT APPLICABLE
Differential side gear journal L.H.	2.367 to 2.369 in. (60.122 to 60.173 mm.)	2.367 to 2.369 in. (60.122 to 60.173 mm.)
Differential side gear journal R.H.	2.8315 to 2.8335 in. (71.920 to 71.971 mm.)	2.8315 to 2.8335 in. (71.920 to 71.971 mm.)
Differential side gear journal	‡2.367 to 2.369 in. (60.122 to 60.173 mm.)	NOT APPLICABLE
Differential casing diameter at bearing location L.H.	2.626 to 2.627 in. (66.701 to 66.726 mm.)	2.626 to 2.627 in. (66.701 to 66.726 mm.)
Differential casing diameter at bearing location R.H.	4.252 to 4.253 in. (107.001 to 108.027 mm.)	4.252 to 4.253 in. (107.001 to 108.027 mm.)
Differential casing diameter at bearing location	‡2.626 to 2.627 in. (66.701 to 66.726 mm.)	NOT APPLICABLE
Differential side gear thrust washer thickness	0.058 to 0.062 in. (1.473 to 1.575 mm.)	0.058 to 0.062 in. (1.473 to 1.575 mm.)
Differential pinion thrust washer thickness	0.058 to 0.062 in. (1.473 to 1.575 mm.)	0.058 to 0.062 in. (1.473 to 1.575 mm.)
DIFFERENTIAL BEARING PRE-LOAD		
Setting	By fitting gaskets on left-hand axle shaft housing joint	
Maximum pre-load allowable	30 lb. in. (0.346 kg.m.)	30 lb. in. (0.346 kg.m.)
Maximum pre-load allowable in terms of pinch on housings	0.003 in. (0.076 mm.) pinch to 0.003 in. (0.076 mm.) end-float	
Gasket thickness	0.0055 to 0.0075 in. (0.140 to 0.191 mm.) compressed 0.009 to 0.012 in. (0.229 to 0.305 mm.) uncompressed	
REAR AXLE TORQUE TIGHTENING FIGURES		
Axle shaft bearing retainer to axle housing nuts	40 to 45 lb. ft. (5.53 to 6.22 kg.m.)	40 to 45 lb. ft. (5.53 to 6.22 kg.m.)
Axle shaft bearing retaining nut to axle shaft	230 to 250 lb. ft. (31.78 to 34.55 kg.m.)	230 to 250 lb. ft. (31.78 to 34.55 kg.m.)
Axle shaft housing to centre housing nuts	45 to 50 lb. ft. (6.22 to 6.92 kg.m.)	45 to 50 lb. ft. (6.22 to 6.92 kg.m.)
Differential casing bolts	65 to 75 lb. ft. (8.99 to 9.68 kg.m.)	65 to 75 lb. ft. (8.99 to 9.68 kg.m.)
REAR AXLE LUBRICATION		
Capacity	34 pints (19.312 litres)	34 pints (19.312 litres)
Lubricant grade	*Standard Type Dexta and Super Dexta* *Temperature Range* — *S.A.E. Viscosity No.* Above 20°F (—7°C) — 30 H.D. Below 20°F (—7°C) — 20 H.D. or 20W/30 H.D.	

‡ *Applicable only to Dexta tractors produced prior to the introduction of Differential Lock*

REAR AXLE—SPECIFICATIONS (*continued*)

	STANDARD TYPE DEXTA	SUPER DEXTA
POWER TAKE-OFF		
Direction of rotation when viewed from rear	Clockwise	Clockwise
Engine/P.T.O. speed ratio	3.33 : 1	3.33 : 1
⌀Engine/P.T.O. speed ratio	2.895 : 1	NOT APPLICABLE
P.T.O. speed	540 r.p.m. at 1800 r.p.m. (engine)	540 r.p.m. at 1800 r.p.m. (engine)
⌀P.T.O. speed	536 r.p.m. at 1550 r.p.m. (engine)	NOT APPLICABLE
P.T.O. shaft :		
Height of shaft from ground—		
10—28 tyres	17.21 in. (437.1 mm.)	17.21 in. (437.1 mm.)
11—28 tyres	18.11 in. (460.0 mm.)	18.11 in. (460.0 mm.)
Number of splines	6	6
Spline diameter	1⅜ in. (34.93 mm.)	1⅜ in. (34.93 mm.)
Length of spline	2.7 in. (68.58 mm.)	2.7 in. (68.58 mm.)
Length of engagement	2.26 in. (57.40 mm.)	2.26 in. (57.40 mm.)
Diameter of shaft :		
Front collar location	1.2480 to 1.2485 in. (31.699 to 31.712 mm.)	1.2480 to 1.2485 in. (31.699 to 31.712 mm.)
Bearing retainer collar location	1.2501 to 1.2506 in. (31.753 to 31.765 mm.)	1.2501 to 1.2506 in. (31.753 to 31.765 mm.)
Rear collar location	1.2551 to 1.2556 in. (31.880 to 31.892 mm.)	1.2551 to 1.2556 in. (31.880 to 31.892 mm.)
Overall length of shaft	23.70 in. (602 mm.)	23.70 in. (602 mm.)
P.T.O. shaft front collar :		
Length	1.46 in. (37.08 mm.)	1.46 in. (37.08 mm.)
Internal diameter	1.2465 to 1.2475 in. (31.661 to 31.687 mm.)	1.2465 to 1.2475 in. (31.661 to 31.687 mm.)
Position of collar from bearing front retaining collar	13.39 to 13.42 in. (340.1 to 340.9 mm.)	13.39 to 13.42 in. (340.1 to 340.9 mm.)
Bearing retainer collar		
Length	0.75 in. (19.05 mm.)	0.75 in. (19.05 mm.)
Internal diameter	1.2441 to 1.2471 in. (31.600 to 31.676 mm.)	1.2441 to 1.2471 in. (31.600 to 31.676 mm.)
Oil seal collar :		
Length	1.085 to 1.095 in. (27.560 to 27.813 mm.)	1.085 to 1.095 in. (27.560 to 27.813 mm.)
Internal diameter	1.2538 to 1.2548 in. (31.847 to 31.872 mm.)	1.2538 to 1.2548 in. (31.847 to 31.872 mm.)
Outside diameter	1.615 to 1.620 in. (41.021 to 41.148 mm.)	1.615 to 1.620 in. (41.021 to 41.148 mm.)
Rear cover plate :		
Bearing bore diameter	2.7493 to 2.7499 in. (69.832 to 69.847 mm.)	2.7493 to 2.7499 in. (69.832 to 69.847 mm.)
Oil seal bore diameter	2.441 to 2.442 in. (62.001 to 62.027 mm.)	2.441 to 2.442 in. (62.001 to 62.027 mm.)
Oil seal position below bearing location shoulder	0.12 in. (3.05 mm.)	0.12 in. (3.05 mm.)

⌀ *Prior to Serial No. 957E–63953*