FRONT AXLE AND STEERING

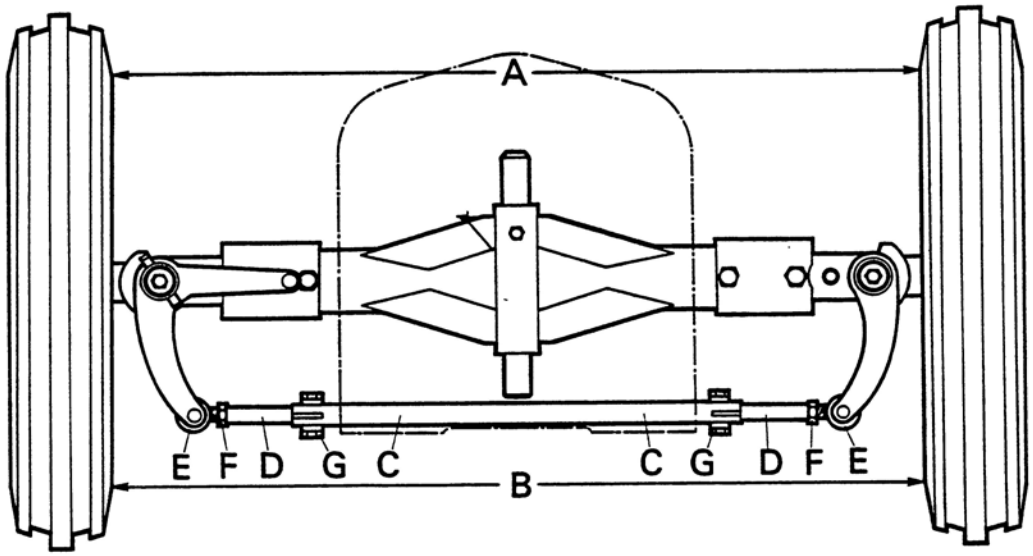

Figure 1. FRONT WHEEL ALIGNMENT

A. Front distance B. Rear distance C. Track rod tube D. Track Rod
E. Ball joint F. Locknut G. Clamp bolt

Front Wheel Alignment

The front wheels should be set so that they have $\frac{1}{16}$ to $\frac{1}{8}$ in. (1·6 to 3·2 mm) toe-in when in the straight-ahead position. (Fig. 1). This setting is determined by the length of the track rod and if the track rod is disturbed, or if incorrect wheel alignment is suspected, the setting should be checked by measuring the distance between the wheel rims at points level with the wheel centres and parallel to the centre-line of the front axle. The distance between the front of the rims should be $\frac{1}{16}$ to $\frac{1}{8}$ in. (1·6 to 3·2 mm) less than the distance between the rear of the rims, and if incorrect may be adjusted by screwing a ball joint further in, or out, of the track rod. As both ball joints have right-hand threads releasing the locknuts and turning the track-rod tube will not alter the length of the track-rod. To alter the track-rod length it is necessary to release a locknut, remove one of the track-rod clamp bolts and turn only half the track rod, so that only one ball joint is screwed further in, or out, as required. After resetting the track-rod length, replace the clamp bolt, tighten the locknut, then recheck the wheel alignment.

As the track-setting holes in the track rod are drilled the same distance apart as the holes in the beam extension, wheel alignment is not altered when the wheel track is changed. If the wheel alignment is correct at one track setting it will remain correct at all track settings.

Front Hubs

Hub Removal: Jack up the front of the tractor and place suitable supports under the axle beam extensions. Remove the front wheels, centre cover and split pins. Unscrew stub axle nuts—these are both right-hand thread—and pull the hubs off the stub axles. The bearings will be removed with the hub and it will be necessary to lever out the oil seal to remove the inner bearing.

Oil Seals: As the presence of dirt or water in the front hub would cause rapid bearing failure a seal is fitted in the inner face of the hub. The main purpose of this seal is to prevent dirt reaching the bearing—not to prevent lubricant escaping from the hub — so it is essential that the seal is fitted with the lip towards the centre of the tractor. The seal therefore prevents dirt entering the hub but allows excess lubricant to escape. A discharge of lubricant past the seal is not, therefore, detrimental but desirable, as this ensures that the cavity between the seal and metal dirt excluder is kept free of abrasive matter which would quickly damage the seal (Fig. 2).

When a tractor is fitted with front-wheel brakes, the brake back-plate prevents dirt reaching the seal, and the seal should therefore be fitted the opposite way round, i.e., the lip facing away from the centre of the tractor so that lubricant cannot escape from the hub and contaminate the brake linings. Because the seal retains lubricant in the hub it is important that when front-wheel brakes are fitted the hubs are lubricated very sparingly, otherwise pressure build-up in the hub, due to an excessive amount of lubricant, will force the seal lip tightly against the collar and cause ultimate seal failure (Fig. 3).

Hub Bearings: After removing both bearing inner tracks, clean out the inside of the hub and examine the bearings. If the surface of the rollers or

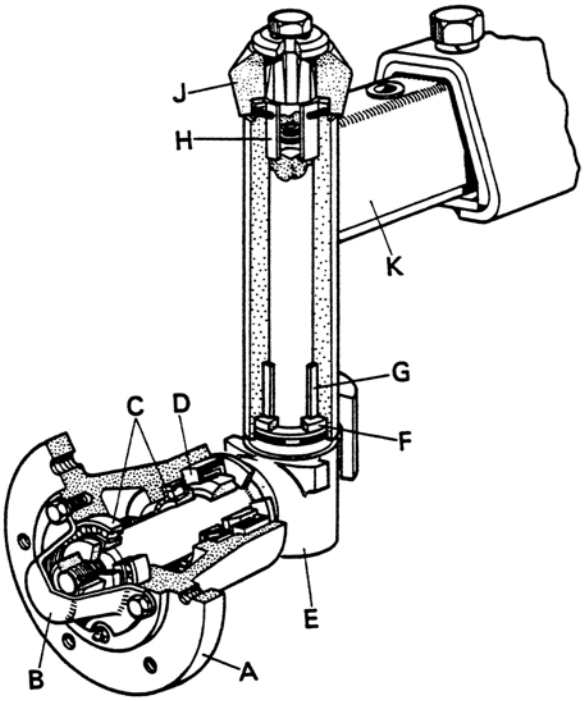

Figure 2.
FRONT HUB AND STUB AXLE

A. Front hub
B. Hub cover
C. Hub bearing
D. Oil seal
E. Stub axle
F. Thrust washer
G. Lower bush
H. Upper bush
J. Steering lever
K. Beam extension

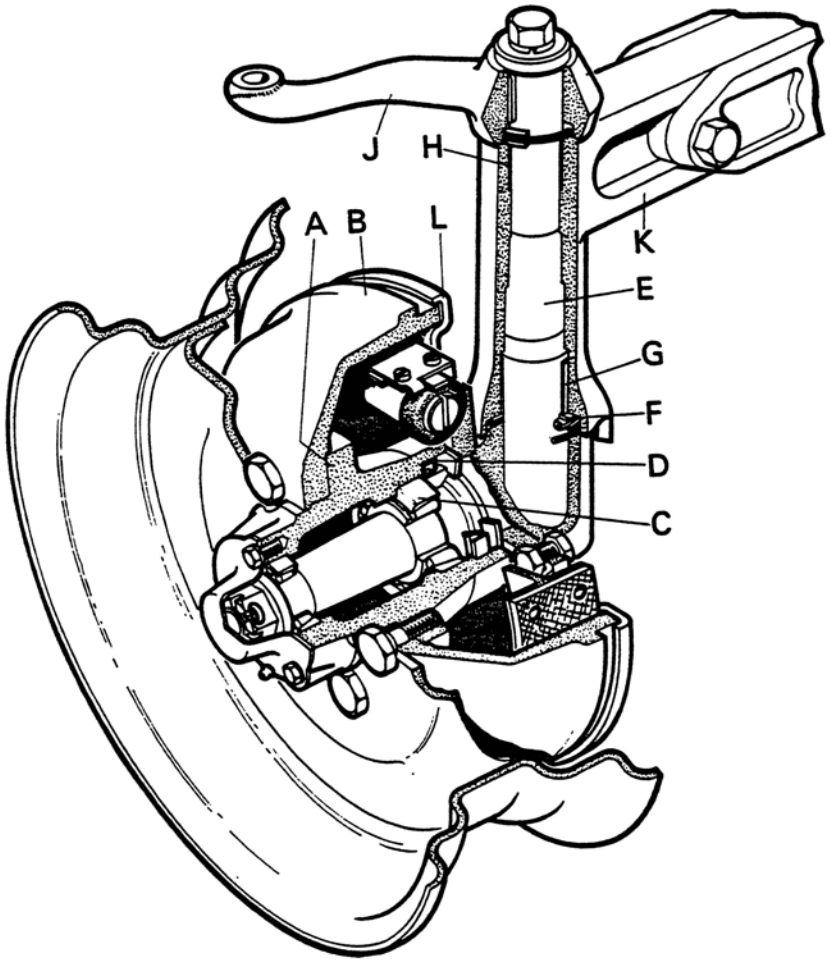

Figure 3. FRONT HUB
WITH FRONT BRAKES

A. Front hub
B. Brake drum
C. Hub bearing
D. Oil seal
E. Stub axle
F. Thrust bearing
G. Lower bush
H. Upper bush
J. Steering lever
K. Beam extension
L. Brake backplate

bearing tracks is pitted or worn the bearings should be renewed. It is not necessary to renew both bearings if one is serviceable, but it is essential that the complete bearing is renewed. The outer track should therefore be driven out of the hub and the track supplied with the new bearing pressed into position — thinnest edge of track towards the outside of hub — until it is firmly in the hub recess.

Refitting the Hubs: Replace the inner bearing and press a new seal into position, using a flat plate so that the seal is pressed in evenly all round. Position the seal so that the lip is facing outwards (unless front brakes are fitted, when it should face inwards).

Pack the inside of the hub with clean grease and replace it in position on the stub axle, taking care that the oil seal lip slides on to the seal collar, and replace the outer bearing. Fit the large flat washer and nut. Rotate the hub whilst firmly tightening the nut, so that the bearings are fully seated, then slacken the nut back one flat and fit a split pin. Replace the cover and pump grease through the nipple until the hub is filled and grease begins to escape past the seal.

Stub Axles

The stub axles pivot in steel-backed bushes in the beam extensions and are retained in position by the steering lever.

Steering Lever Removal: Raise the front end of tractor and place supports under the front axle beam extensions. Remove the wheels and the steering-arm bolts then temporarily refit the steering-arm bolts without washers. Screw the bolts finger-tight then unscrew two full turns only and, with a solid support under the beam extension, strike the bolt a sharp blow squarely on the head. This will release the steering lever from the taper on the stub axle and allow the stub axle to be removed when the bolt is unscrewed.

Stub Axle Bushes: Two stub axle bushes are pressed into each beam extension and these should be renewed if worn. Drive the bushes out with a suitable drift taking care not to damage the bush locations. When fitting new bushes, clean the components and remove any burrs from the axle bores. Press the new bushes into position using a mandrel made to the dimensions shown in Fig. 4. If a mandrel is used the bushes will not be damaged during fitting, and reaming will not be necessary.

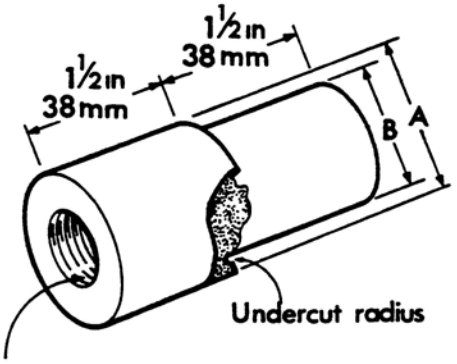

Figure 4. DETAILS OF BUSH MANDRELS

The following mandrels will be found useful for removing and replacing steering bushes:

A	B
Mandrel No. 1	
1·120 in. (28·45 mm)	0·995 in. (25·27 mm)
Mandrel No. 2	
1·370 in. (34·80 mm)	1·245 in. (31·62 mm)
Mandrel No. 3	
1·495 in. (37·97 mm)	1·370 in. (34·80 mm)
Mandrel No. 4	
1·620 in. (41·15 mm)	1·495 in. (37·97 mm)
Mandrel No. 5	
1·870 in. (47·50 mm)	1·745 in. (44·22 mm)

Thrust Washers and Seals: Model 1200 Tractors, and 990 and 880 Tractors with heavy duty front axles, are fitted with roller thrust bearings. These bearings are fitted with a steel washer at each side and, as two different types of bearings are supplied, ensure that the correct washers are used (Fig. 6). The bronze thrust washers fitted on other tractors do not require steel backing washers.

Always fit new thrust washers and sealing rings when fitting new bushes.

Steering Stops: Front wheel movement is limited by means of the stops on the beam extensions. If the stops become worn, remove the extension and build the stops up to the original shape with welding (Fig. 7). If the steering-box reaches the end of its travel before the stub axles touch the stops a heavy impact against the front wheels may damage the steering box casting.

Refitting the Stub Axles: Clean the stub axle and fit a new sealing ring. Smear the thrust

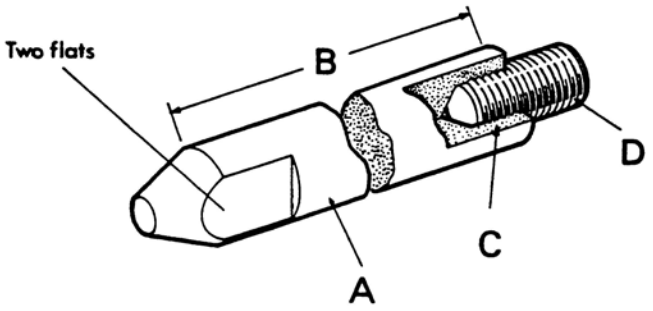

Figure 5. HOLDER FOR BUSH MANDREL

A. Mild Steel bar 1 in. (25 mm) dia.
B. 12 in. (30·5 mm)
C. ⅝ UNC × ¾ in. (19 mm) deep
D. Stud, ⅝ UNC × 1½ in. (38 mm)

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