

SHOP MANUAL DEUTZ-ALLIS

MODELS

6240—6250—6260—6265—6275

On Models 6240, 6250 and 6260, tractor serial number is stamped on left front side of clutch housing. On Models 6265 and 6275, tractor serial number is stamped on right side of front axle support bracket. A chassis nameplate is also attached to right front side of hood side cover. On all models, engine serial number and model number is stamped on a nameplate attached to left side of engine crankcase.

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DUAL DIMENSIONS

This service manual provides specifications in both the U.S. Customary and Metric (SI) system of measurements. The first specification is given in the measuring system used during manufacture, while the second specification (given in parenthesis) is the converted measurement. For instance, a specification of "0.28 mm (0.011 inch)" would indicate that the equipment was manufactured using the metric system of measurement and the U.S. Customary equivalent of 0.28 mm is 0.011 inch.

CONDENSED SERVICE DATA

	6240	Models 6250	6260
GENERAL			
Engine Make	Deutz		
Engine Model	F3L 912		F3L 913
Number of Cylinders	3		
Bore	100 mm (3.937 in.)		102 mm (4.015 in.)
Stroke	120 mm (4.725 in.)		125 mm (4.921 in.)
Displacement	2.83 L (172.5 cu. in.)		3.06 L (186.7 cu. in.)
Compression Ratio	17:1		
TUNE-UP			
Firing Order	1-2-3		
Valve Tappet Gap-Engine Cold			
Intake	0.15 mm (0.006 in.)		
Exhaust	0.15 mm (0.006 in.)		
Valve Face and Seat Angle—			
Intake	45°		
Exhaust	45°		
Injection Timing—			
Crankshaft	28 BTDC	28 BTDC	22 BTDC
Injectors—			
Opening Pressure			
New	18000-18800 kPa (2610-2725 psi)		
Used	17500-18300 kPa (2538-2654 psi)		
Governed Speeds—Engine Rpm			
Low Idle	750		
Rated Speed	2150	2500	2500
High Idle	2275	2625	2620
Power Rating at Pto Shaft	32 kW (43 hp)	38 kW (51 hp)	42.5 kW (57 hp)
Battery—			
Volts	12		
Ground Polarity	Negative		

CONDENSED SERVICE DATA (CONT.)

	Models		
	6240	6250	6260
SIZES—CLEARANCES			
Crankshaft Main Journal—			
Diameter	69.97-69.99 mm		
	(2.7548-2.7555 in.)		
Bearing Clearance	0.05-0.11 mm		
	(0.0020-0.0043 in.)		
Crankpin			
Diameter	59.94-59.96 mm		
	(2.3599-2.3606 in.)		
Bearing Clearance	0.04-0.098 mm		
	(0.0016-0.0038 in.)		
Crankshaft End Play	0.15-0.314 mm		
	(0.006-0.012 in.)		
CAPACITIES			
Crankcase Oil with Filter			
Change	9 liters		
	(9.5 U.S. qts.)		
Transmission, w/o Creeper Gear			
Without Front Wheel Drive	22 liters		
	(23.25 U.S. qts.)		
With Front Wheel Drive	24 liters		
	(25.5 U.S. qts.)		
Transmission, w/Creeper Gear			
Without Front Wheel Drive	23.5 liters		
	(24.75 U.S. qts.)		
With Front Wheel Drive	25.5 liters		
	(27 U.S. qts.)		
Front Drive Axle Differential			
	5.0 liters		
	(5.25 U.S. qts.)		
Final Drive (Each Side)	1.0 liter		
	(1.1 U.S. qts.)		

CONDENSED SERVICE DATA

	Models	
	6265	6275
GENERAL		
Engine Make	Deutz	
Engine Model	F4L 912	F4L 913
Number of Cylinders	4	4
Bore	100 mm	102 mm
	(3.937 in.)	(4.015 in.)
Stroke	120 mm	125 mm
	(4.725 in.)	(4.921 in.)
Displacement	3.77 L	4.09 L
	(230 cu. in.)	(249 cu. in.)
Compression Ratio	17:1	17:1

CONDENSED SERVICE DATA (CONT.)

	Models	
	6265	6275
TUNE-UP		
Firing Order	1-3-4-2	
Valve Tappet Gap-Engine Cold		
Intake	0.15 mm (0.006 in.)	
Exhaust	0.15 mm (0.006 in.)	
Valve Face and Seat Angle—		
Intake	45°	
Exhaust	45°	
Injection Timing-Crankshaft		
Degrees	28 BTDC	
Injectors—Opening Pressure		
New	18000-18800 kPa (2610-2726 psi)	
Used	17500-18300 kPa (2538-2654 psi)	
Governed Speeds—Engine Rpm		
Low Idle	750	
Rated Speed	2350	
High Idle	2465	
Power Rating at Pto Shaft	48.5 kW (65 hp)	54.5 kW (73 hp)
Battery—		
Volts	12	
Ground Polarity	Negative	
SIZES—CLEARANCES		
Crankshaft Main Journal—		
Diameter	69.97-69.99 mm (2.7548-2.7555 in.)	
Bearing Clearance	0.05-0.11 mm (0.0020-0.0043 in.)	
Crankpin Diameter	59.94-59.96 mm (2.3599-2.3606 in.)	
Bearing Clearance	0.04-0.098 mm (0.0016-0.0038 in.)	
Crankshaft End Play	0.15-0.314 mm (0.006-0.012 in.)	
CAPACITIES		
Crankcase Oil with Filter Change	10 liters (10.5 U.S. qts.)	
Transmission		
Without Front Wheel Drive	36 liters (38 U.S. qts.)	
With Front Wheel Drive	39 liters (41.25 U.S. qts.)	
Front Wheel Drive Axle—		
Differential	5 liters (5.25 U.S. qts.)	
Final Drive (Each Side)	1 liter (1.1 U.S. qts.)	

FRONT AXLE (Two Wheel Drive)

AXLE ASSEMBLY

1. REMOVE AND REINSTALL. To remove front axle assembly, support tractor behind the axle and remove front wheels. If equipped with mechanical steering, disconnect steering drag link from steering arm. If equipped with power steering, disconnect hydraulic hoses from power steering cylinder. Support axle with a floor jack. Remove set screw retaining axle pivot pin in axle support bracket and withdraw pivot pin. Lower axle assembly to the floor.

Inspect thrust washer (1—Fig. 1, 2 or 3), pivot bushings (2), pivot pin and axle main member (3) for excessive wear and renew as necessary. Thrust washer is available in different thicknesses to adjust axle end play, which should be 0.30-0.50 mm (0.012-0.020 inch).

To reinstall axle assembly, reverse the removal procedure.

FRONT WHEEL BEARINGS

2. REMOVE AND REINSTALL. Raise and support front of tractor. Remove wheel and tire. Remove hub cap (22—Fig. 1, 2 or 3) and retaining nut (21). Withdraw wheel hub (19) and bearings (18 and 20). Remove wheel seal (17), washer (16) and dust shield (15).

Pack wheel bearings with grease, then reinstall by reversing the removal procedure. Tighten retaining nut (21) until all end play in bearings is removed, then loosen nut to obtain recommended end play of 0.02-0.15 mm (0.001-0.006 inch).

SPINDLES AND BUSHINGS

3. REMOVE AND REINSTALL. To remove spindles (14—Fig. 1, 2 or 3), support front end of tractor with suitable stand and remove front wheels and wheel hub as outlined in paragraph 2.

On models with mechanical steering, disconnect steering drag link and tie rod from steering arm and track arm. Remove clamp bolt from steering arm and track arm, then drive the spindles out of the arms. Drive bushings (7) out of axle if necessary.

On models with power steering, disconnect steering cylinder and tie rod from steering arm and track arm. Remove retaining screw, retaining plate (4—Fig. 2 or 3) and cup spring (5). Lower the spindles (13 and 14) from axle. Drive spindle bushings (6) out of axle if necessary.

Inspect all parts for excessive wear and renew as necessary. To reinstall, reverse the removal procedure. Lubricate spindles and bushings with multipurpose grease.

1. Thrust washer
2. Bushings
3. Axle main member
4. Track arm
5. Tie rod
6. Steering arm
7. Bushings
9. Thrust washer
10. Thrust washer
11. Key
14. Spindle
15. Dust shield
16. Seal
17. Seal retainer
18. Bearing assy.
19. Wheel hub
20. Bearing assy.
21. Nut
22. Hub cap

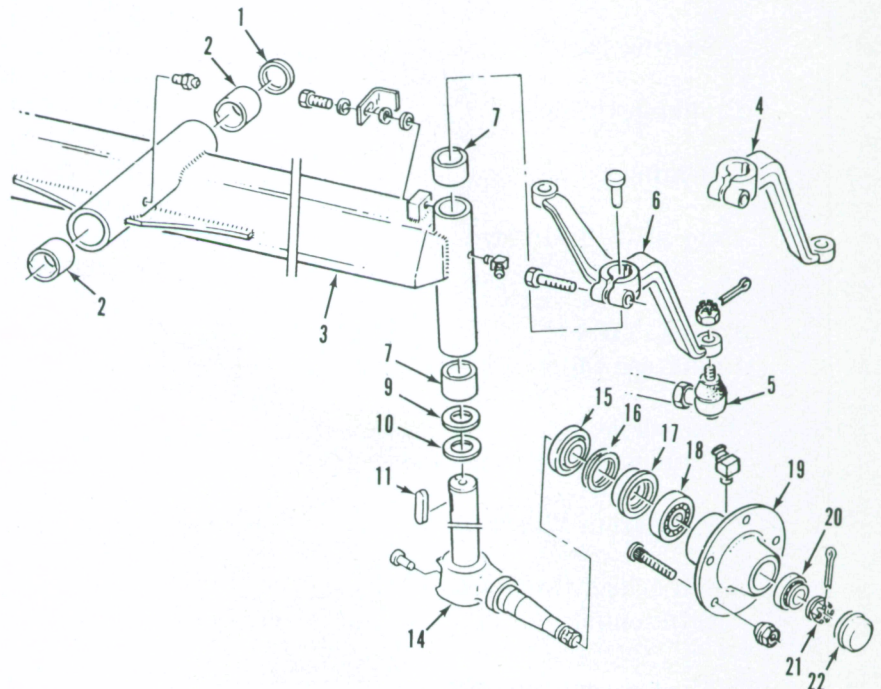
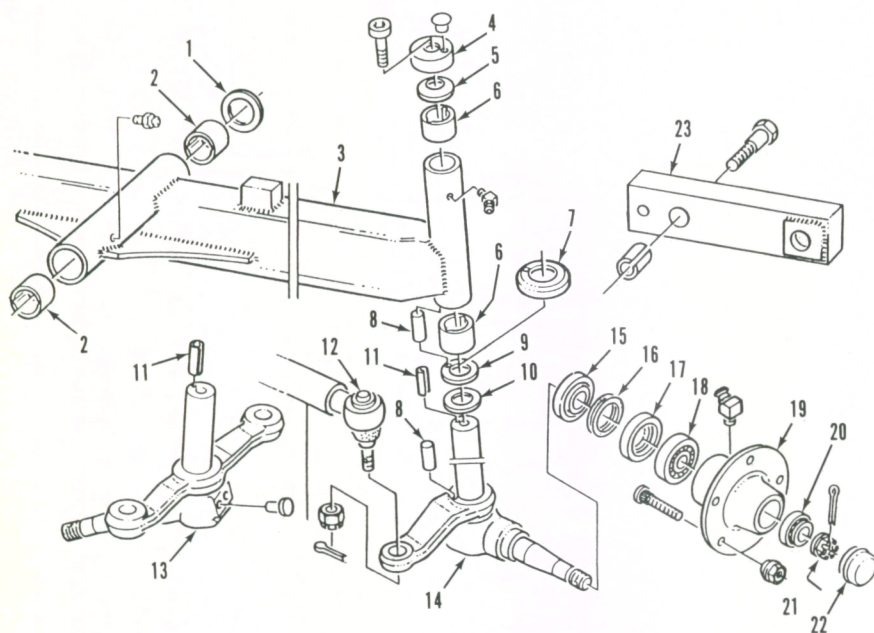


Fig. 1—Exploded view of rigid type front axle assembly used on tractors equipped with mechanical steering.

TIE RODS AND TOE-IN

4. Nonadjustable automotive type tie rod ends are used. Tie rod ends must be renewed if excessively worn.

Recommended toe-in is 0.5 mm (0.3/16 inch), measured at front and rear of tires at wheel spindle height. To adjust, disconnect tie rod end from steering arm. Loosen clamp and turn threaded tie rod end into or out of tie rod tube as necessary.



1. Thrust washer
2. Bushings
3. Axle main member
4. Retainer plate
5. Cup spring
6. Bushings
7. Dust cover
8. Dowel pins
9. Thrust washer
10. Thrust washer
11. Roll pin
12. Tie rod
13. Steering arm & spindle
14. Track arm & spindle
15. Dust shield
16. Seal
17. Seal retainer
18. Bearing assy.
19. Wheel hub
20. Bearing assy.
21. Nut
22. Hub cap
23. Steering cylinder mounting bracket

Fig. 2—Exploded view of rigid front axle assembly used on models equipped with power steering.

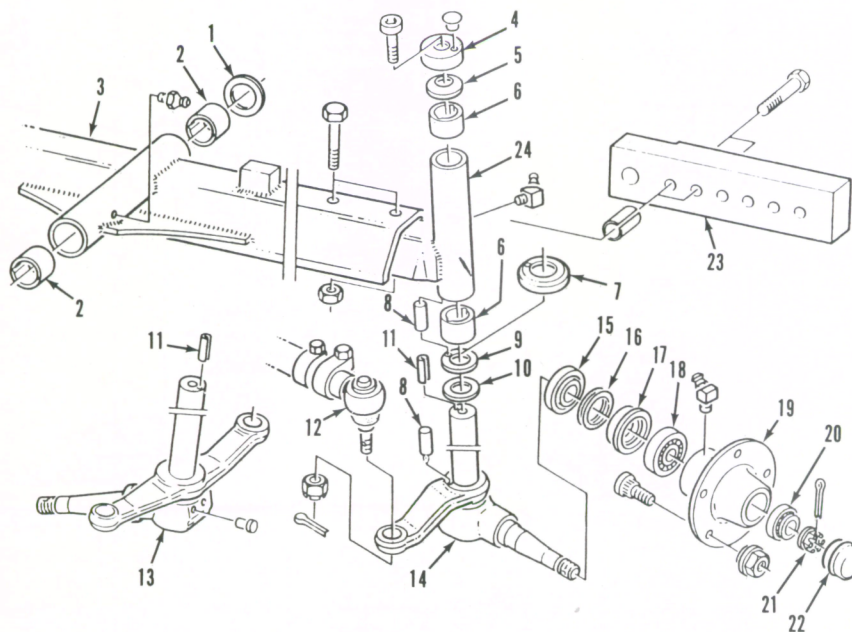


Fig. 3—Exploded view of telescoping front axle assembly used on some tractors. Refer to Fig. 2 for parts legend except for axle extension (24).

FRONT WHEEL DRIVE AXLE

LUBRICATION

6. Oil level in front axle housing and final drive housings should be checked after every 500 hours of operation. See Fig. 5. Manufacturer recommends renewing lubricant after every 1000 hours of operation or yearly, whichever comes first. Fill housings to level plug openings with SAE 90, API-GL 5 gear lubricant. Capacity is approximately 5 liters (5.25 quarts) for axle housing and 1 liter (1.1 quarts) for each final drive housing.

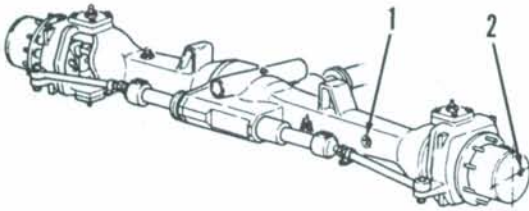


Fig. 5—View of front drive axle showing location of axle housing oil level check plug (1) and planetary final drive housing oil level/drain plug (2).

Lubricate axle pivot, swivel housing pivots and axle shaft universal joints with multipurpose lithium base grease.

R&R AXLE ASSEMBLY

7. To remove axle assembly, raise front of tractor and place suitable supports behind the axle. Remove front wheels, fenders and drive shaft. Disconnect power steering lines and plug all openings. Support the axle housing with a floor jack. Remove set screw retaining axle pivot pin in axle support housing, withdraw pivot pin and lower axle assembly from the tractor.

To reinstall axle, reverse the removal procedure.

FINAL DRIVE AND WHEEL HUB

8. R&R AND OVERHAUL. To remove final drive assembly from either side, first raise and support front of tractor and remove front wheel. Drain oil from final drive housing. Unbolt and remove outer cover (2—Fig. 6), shims (9) and washer (10). Thread

1. Oil drain/level plug
2. Cover
3. Dowel pins
4. Planetary carrier
5. Planetary gear shafts
6. Thrust washers
7. Planetary gears
8. Bearings
9. Shim
10. Washer
11. Snap ring
12. Washer
13. Sun gear
14. Ring gear
15. Snap ring
16. Slotted nut
17. Washers
19. Ring gear hub
20. Bearing
21. Wheel hub
22. Bearing
23. Oil seal
24. Hub carrier
25. Bushing
26. Oil seals
27. Pivot housing
28. Axle half shafts

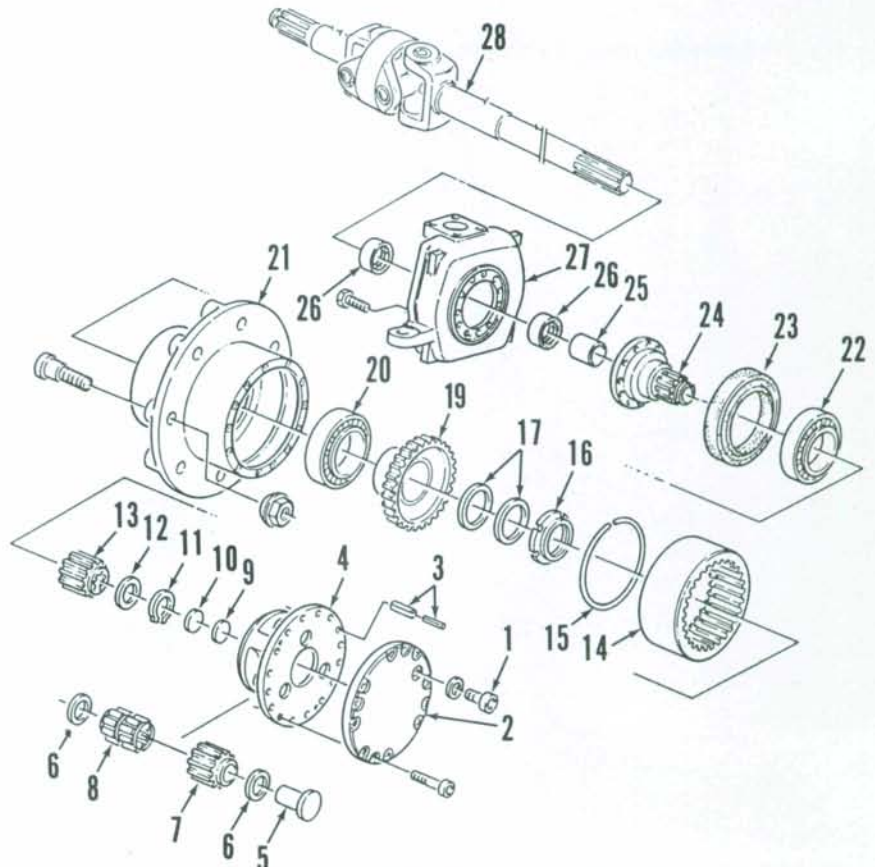


Fig. 6—Exploded view of front wheel drive planetary final drive and wheel hub assembly.

two M8 × 30 cap screws into tapped holes in planetary carrier (4) to aid in removing carrier assembly from wheel hub (21). Withdraw planetary carrier assembly from wheel hub. Remove snap ring (11), thrust washer (12) and sun gear (13) from axle shaft. Remove slotted nut (16) and washers (17), then withdraw ring gear (14) and gear hub (19). Remove wheel hub (21) from swivel housing. Remove oil seal (23) and bearings (20 and 22) as necessary.

To disassemble planetary unit, push planetary shafts (5) out of planetary carrier and remove thrust washers (6), planetary gears (7) and bearings (8).

To reassemble, heat bearing cones to a temperature of 80° C (175° F). Place inner bearing cone (22) into wheel hub, then install seal (23) with lip facing the bearing. Lubricate seal lip with grease. Install outer bearing cone (20) on ring gear hub (19). Install wheel hub and ring gear assembly onto swivel housing and adjust bearings as follows:

Tighten slotted nut (16) until a torque of 8-12 N·m (6-9 ft.-lbs.) is required to rotate wheel hub (Fig. 7). When bearings are correctly adjusted, stake outer flange of slotted nut into slots of hub carrier shaft to prevent nut from loosening.

Assemble planetary gears, bearings, thrust washers and pins in planetary carrier. Apply suitable instant gasket maker compound to mounting surface of planetary carrier, then install carrier in wheel hub. Install sun gear, thrust washer and snap ring on axle shaft.

End clearance (C—Fig. 8) between axle shaft (28) and cover stop washer (10) should be 0.2-0.4 mm (0.008-0.016 inch). To adjust end clearance, proceed as follows: Measure distance (A) from outer surface of planetary carrier (4—Fig. 9) to end of axle shaft (28). Measure distance (B—Fig. 8) from mounting surface of cover (2) to shoulder of counterbore as shown in Fig. 10. Select shims (9—Fig. 8) as necessary so that total thickness of stop washer (10) and shims is 0.2-

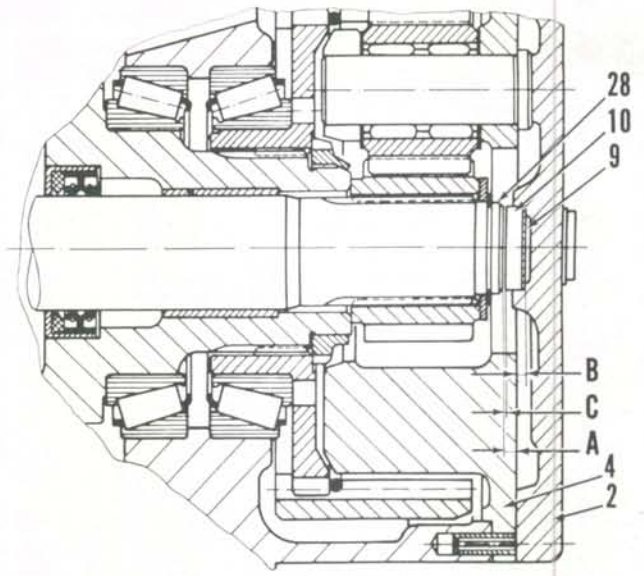


Fig. 8—End clearance (C) between axle shaft (28) and stop washer (10) is adjusted by means of shims (9). Refer to text and Fig. 9 for dimension (A) and Fig. 10 for dimension (B).

- 2. Cover
- 4. Planetary carrier
- 9. Shims
- 10. Stop washer
- 28. Axle shaft

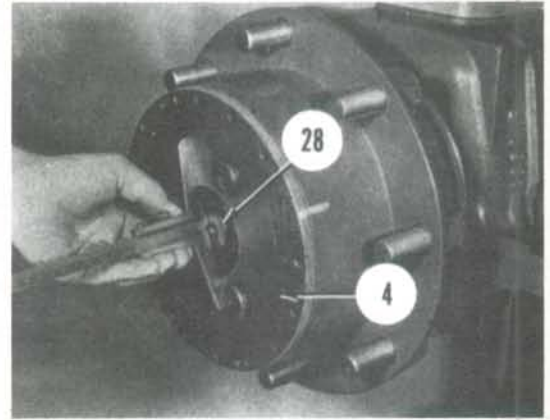


Fig. 9—Measuring distance from outer surface of planetary carrier (4) to end of axle shaft (28).

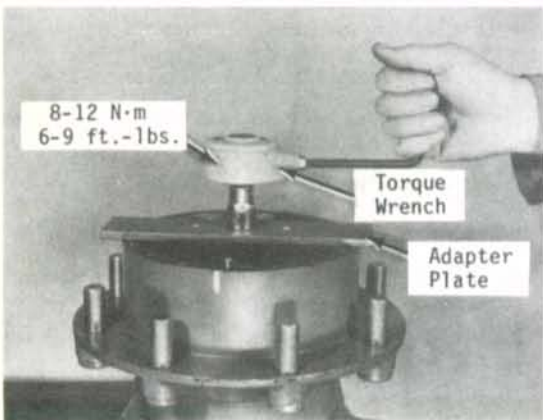


Fig. 7—To adjust wheel bearing preload, fabricate an adapter plate with a nut and bolt in the center that can be attached to wheel hub. Use a torque wrench to check rolling torque as shown. Refer to text.

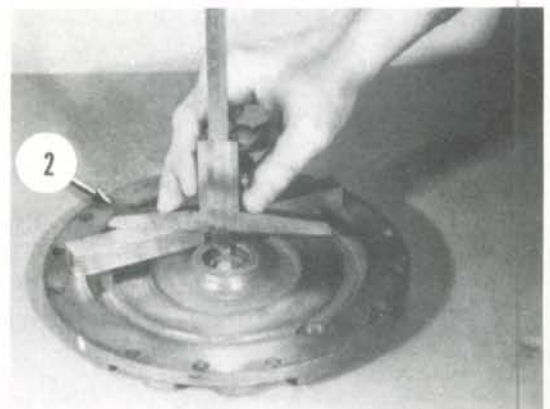


Fig. 10—Measuring distance from mounting surface of cover (2) to shoulder of counterbore.